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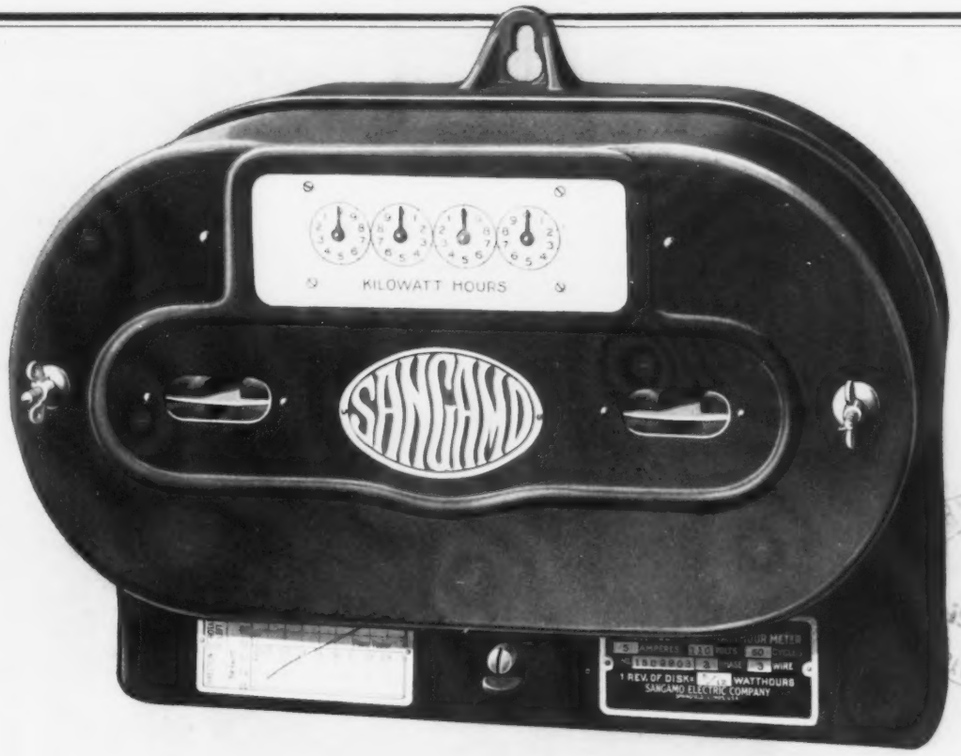

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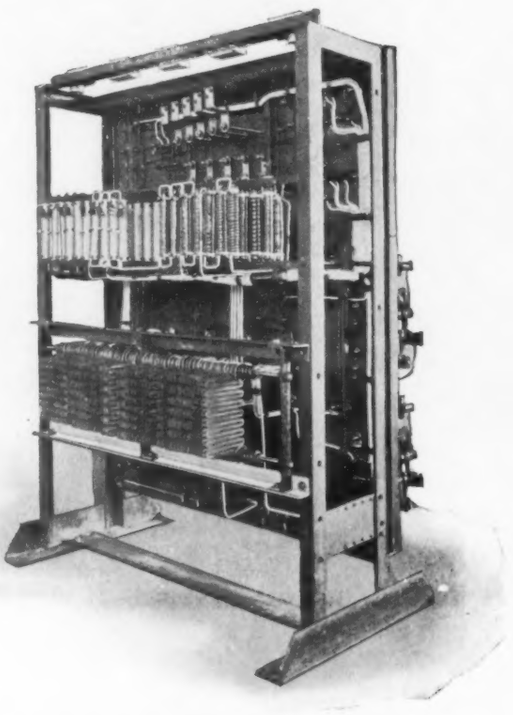

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The News of the Industry

ONE of the many problems confronting the editors of a publication such as this, is to plan so that every subscriber shall find something of interest and value in each issue. The editorial field of the Journal of Electricity is, briefly, the development of central station power and its application to industry and the home. Within the industry itself, there are many highly specialized branches, each with its specific problems, and yet dependent upon one another in many important respects.

There is one common ground upon which all branches meet, and that is the news of the industry. Any man engaged in any phase of electrical work, should, nay, must, keep in touch with what is going on in his chosen field of endeavor.

To fill this need, the editors of the Journal of Electricity have constructed a news-gathering organization of exceptional efficiency. With the general offices in San Francisco as the hub of the wheel, channels through which news flows radiate outward in all directions. There is no important center within the eleven Western states without a special news correspondent for the Journal of Electricity. Each news correspondent is himself connected with the electrical industry in his own locality, and, by reason of his own knowledge and experience, is thoroughly competent to know news when he sees it.

An independent check upon the accuracy of the news matter thus gathered is afforded by the newspapers in each locality. These are assembled, clipped, and assorted by the news editor and his assistant, and then studied with reports sent in by the district correspondents. All copy is read and checked for typographical errors three times before going to press. This is one of the many ways by which this publication serves its clientele.

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The High Cost of Initiative

CALIFORNIA is a state interesting in many ways other than its vaunted sunshine, fruit, and flowers. It has become the cradle in which all sorts of experiments in government are rocked by the hands of the "practical" politician, reformers, enthusiasts, preventers, and honest men. Among these may be mentioned the initiative, by which such things as amendments to the State Constitution may be "initiated" by one or more citizens, and, backed by the statutory number of signatures, are placed in due course upon the ballot for submission to the voters.

OF course, the primary object of the initiative is to promote more "popular," and, as a result, less "representative" government. Truly, this would seem a worthy object. The people must rule, and every citizen thus becomes a legislator himself, at least in theory.

HOWEVER, many a beautiful theory is wrecked upon an ugly fact. The initiative is proving a costly, cumbersome affair in many respects, and seems to aid, rather than prevent the incubation of immature, ill-considered experiments in government.

THE 1922 State Water and Power Act is a fair example of this type of initiative measure. On the ballot that year there were a number of others, all embodying radical departures from accepted practices and principles. Thus, almost without warning, many established institutions had to organize hastily, gird up their loins, and fight for their lives. The Water and Power Act, carrying as it did a total of half a billion dollars in the form of a bond issue, received the most attention, and incidentally cost nearly $662,000 to the proponents and opponents in submitting their case to the voting public.

AN investigating committee of the State Legislature, in reporting on the subject of these expenditures states, "Your Committee * * * is not yet constrained to advise the placing of a limit as to the amount of expenditure, at least until some means is devised whereby both sides of important issues can be adequately and equally presented to the public at less cost."

IT would appear, at least, that such expenditures are an inevitable effect of the initiative of measures attacking any established industry. Any zealot, long-haired reformer, honest well-meaning citizen, or schemer with an axe to grind, can rock the boat of industry any time he likes. If this is what the people want, industry is compelled to pay the cost of self-defense. Truly, success has its drawbacks as well as failures.

The Ultimate Goal of Customer-Ownership

GROWTH in any business carries with it many problems. One o the greatest of these is that of financing improvements and extensions necessitated by increasing demand for service. Money must be provided in constantly greater quantities for investment in plant equipment.

Until Mr. A. F. Hockenbeamer devised the so-called "customer-ownership" plan, practically all utility financing was done by the issuance of bonds, underwritten by syndicates of bankers, and by them sold to investors whose interest in the utility question was abstract rather than concrete. Since then, the customer-ownership idea has taken such a hold upon the imagination of the consuming public, that the great public utilities of today have, in effect, become great cooperative enterprises. Public ownership, in the best sense of the word, is in a fair way of being accomplished without destroying at the same time the efficiency of private initiative.

On another page of this issue is described a customer-ownership drive, undertaken by the Public Service Company of Colorado. Some of the achievements in this campaign are worthy of particular notice. For instance, 16,579 shares of stock were sold in ten days. A total of 551 employees purchased stock and 5,299 customer-shareholders were added. The company has a total of 1,825 employees and 1,085 of these made sales. Moreover, this record was made just a month before Christmas at a time when considerable doubt was expressed regarding the ability of the public to subscribe.

The statement has been made that within two years' time there will be at least a million customer-owners of electric utility securities in America. The Colorado campaign tends to bear out this statement. But why set the bogey at the million mark? Theoretically the job will not be completed until every employee and every customer is a shareholder. We do not feel that it will be impossible ultimately to include all of this group of 10,000,000 or more in the ranks of customer and employee owners.

Public Relations Idea Does Not Extend to the Government

AMERICAN law-making bodies have spent the greater part of their time during the past two decades devising commissions, committees, laws and courts to act as a check upon private business. A great army of office holders, who go about exercising the Czar-like prerogatives invested in them by law, has been built up for the purpose of applying the business straitjacket often without discriminating between the just and the unjust. But how about the government itself? Checks upon it are few and far between. The citizen is nearly always without recourse. The bureaucrat is judge and jury.

As a specific case, a citizen of Berkeley, Calif., built a house, which was located two blocks outside the city limits. Both the post office and the express company refused to make deliveries to his house. Mail was left at a box set inside the city limits. A complaint was made to the Railroad Commission regarding the express company. Within a month calls were made to the house.

On the other hand, innumerable complaints, both to the local post office and the postal authorities in Washington, were made with no results. The citizen gave up in disgust, finding it easier to walk the four blocks twice a day to get his mail rather than attempt to obtain the service which he felt was his due.

Now the point in this case is that the citizen had no recourse under law when dealing with the post office department. He could not bring suit. There was no commission or body with which he could lodge complaint as in the case of the express company. Whether or not he received service depended upon the whim of the particular man who was in office at the time. It cannot be expected that his treatment would have been different had he been dealing with any other government-owned utility. Similar instances can be pointed out where municipal ownership is in force.

There are several possible solutions for such situations. One is to place government-owned utilities in the same category as privately-owned ones in the matter of regulation. Another is to consider the establishment of public relations departments in those utilities which are owned and operated by the government. The third, and to our minds, the best, is to continue the privately owned and operated utilities under commission regulation.

Possibilities in Highway Illumination

HIGHWAY illumination is attracting considerable attention in many sections of the West. California, with one of the finest networks of highways in the country; Washington, Oregon, and many of the other Western states with splendid highway systems, should afford a fertile field for the development of this recent electrical application.

Aside from its new-business aspects this field has many other commendatory features. In the first place, it will make possible the extension of electric service to rural districts which are not now served. It will be a simple matter to run extensions from pole lines paralleling the highways. Farms which are at present isolated will be afforded the many conveniences of electric service.

The chief factor in the argument for highway lighting, however, concerns public welfare and safety. Not only would illuminated highways make unnecessary the excessively bright automobile headlights—in themselves a source of danger—but they would reduce the danger of crime,—a fact which has been proved in the case of city street-lighting. A casual glance at the headlines of any Monday morning's paper will prove the need for something to lower the accident hazard on our highways.

If highway lighting will do all these things, then is it not the duty of the electrical industry to take steps to see that those charged with the construction and administration of the highway systems are prop-

erly informed on the subject? It would seem that here is a field for those cooperative agencies which already exist or for a special committee representing the various branches of the industry interested in this application.

The Hidden Reef in the Path of Trade Associations

LITTLE by little, the industrial association movement is assuming a more important role in our business lives. We now have great national organizations through which the combined thought of industrial leaders finds expression. Then there are countless thousands of local associations, that may be affiliated with national bodies, or may be either quasi or wholly independent.

Herbert C. Hoover, Secretary of Commerce, recognizing the great powers of such associations for good or evil has, through his department, published a careful study of this interesting development. In fact, it is not too great a flight of the imagination to regard the institution of the Federal Trade Commission as a counter-move on the part of the government to provide a proper check in case illegal practices should crop up as the fruit of the association idea.

Those within the electrical industry, as well if not better than others, know how great a constructive force their many associations have become. The dissemination of knowledge, the encouragement of study and research, the social quality of their meetings and conventions have met and satisfied a need that could not have been filled in any other way.

There is always the fear that price-fixing and its attendant evil, an organized attempt to control markets, may insinuate their way into the constructive policies that have distinguished electrical organizations, and bring about their undoing.

Fortunately for the electrical industry, there are wise heads in control of organized effort, who will continue the progress of the past along the same lines that have proved their value to the community within which they function.

A Lesson From Mr. Edison's Seventy-Seventh Birthday

ON the eleventh day of this month, Thomas A. Edison was 77 years old, or young. It is related that he started the celebration of his natal day by "punching" the time-clock at his accustomed hour, and then put in his regular 14-hour day. He seems to be a living, breathing refutation of the idea that one may break down from overwork.

No one can question the many contributions of Edison to the welfare of humanity. The real question is, have his great accomplishments been achieved in spite of rather than because of, his 14-hour days, and his burning the Edison Mazda at both ends? Perhaps Mr. Edison will answer. At any rate, all work and no play, makes a combination whereby Jack will get little out of life, especially the average Jack, in which category most of us find ourselves.

There is little doubt, that if one could be freed from the worry incident to the constant struggle for one's daily bread, mere work would be a sinecure. It is worry, not work, that destroys the nervous system, sends the digestive apparatus to the drydock for repairs, and swells the bank accounts of the doctors. The primal instinct for self-preservation makes most of us work, that we may eat. The fear of starvation removed, would we, any of us, put in fourteen hours per day at work, merely for the love of it? We doubt it. Everybody can't be an Edison. Not many of us would want to, if the 14-hour day was part of the price we would have to pay.

In the Matter of the So-Called Radio Monopoly

EIGHT of the most prominent manufacturers of radio apparatus have been summoned before the Federal Trade Commission to answer charges of monopolizing the radio industry. Because these companies have pooled patents in order to combine the good features of each for the benefit of the public and thereby give them the best apparatus obtainable, they are to be made the subject of a sweeping investigation to determine whether or not they are in restraint of trade.

These companies maintain that their monopoly is based on patents alone, that it is legal and that without it, much of the progress in radio communication during the past two years would have been impossible. As to the legality of their contractual relations we are not in a position to judge. We are morally certain, however, that much of the progress in radio art has been due to their co-ordinated efforts. And if the grant of a patent, which under law gives a monopoly to the patentee for 17 years, is both legal and illegal, the statutes are curious things indeed. If one who controls a patent licenses one or more manufacturers to produce a device, and if these manufacturers are then to be indicted by the Commission as a monopoly in restraint of trade, is not something wrong with the statutes governing either the patent office or the Commission?

To go back to the Federal Trade Commission, the New York Times in a recent editorial offers the following comments:

> The Trade Commission has a record as well as the defendants. It risks no such penalties for mistakes as do the defendants, and therefore makes more of them. The Radio Trust could not survive such errors as the commission makes with impunity. It has issued 1,062 complaints, with the result of final action in only 563. The courts have reviewed 35 cases, finding that in 23 the orders of the commission were wholly void. Only in seven were they valid. On the balance of presumptions the defendants would stand a 3 to 1 chance of being right and commission wrong. In its report for 1923, the commission says that continuous litigation has resulted from appeals from its procedure, with the result of "developing the law of business practices under the court's rulings." It would thus seem that the commission is more of an aid to lawyers than to business.

Not until the evidence is heard and the commission renders a decision and the courts pass on it in appeal, can it be determined whether the radio manufacturers or the Federal Trade Commission is in restraint of trade.

CURRENT COMMENT

Before a just basis of comparison between publicly owned or operated utilities and privately conducted enterprises of a similar nature can be established, the former should be subjected to the same measure of public regulation that the law places upon the private utility. A measure to that effect was defeated in California in 1922. George L. Meyers, assistant to the president, Pacific Power & Light Company, Portland, and president of the Northwest Electric Association, in a recent statement, brought out some of the reasons why there should be no discrimination between publicly owned and privately owned utilities in the matter of regulation. Mr. Meyers says:

Publicly Owned Utilities Should Be Regulated

Publicly owned or operated utilities should be subject to regulation by the state in like manner as are privately owned or operated utilities.

The users of service in each instance are entitled to the best assurance of reasonable rates and adequate standards of service. The state by reason of the machinery set up for regulation is the best fitted to do it. It provides an administrative staff qualified by experience and training for the task and this staff applies itself constantly to it. In this way accounting principles and practice of the most approved type can be established and maintained in the interest of uniformity and to properly allocate and account for the expenses of operation and capital expenditures. Adequate standards of service should be fixed by regulatory authorities with the advice and counsel of those of the staff technically qualified and determination made by expert analysis and investigation of the value of property for purposes of rate making and rates fixed for service so as to be as nearly equitable as possible among all classes of users and thereby prevent discrimination. Regulation can be fair and reasonable only if it is impartially and expertly administered. The cost, the need of constant check and the adjustments necessary from time to time to meet changing conditions that require expert findings make a qualified regulatory body the most desirable, efficient and fair method of regulation. The cost itself is prohibitive for smaller cities and in the case of the larger ones there is not need of a permanent staff and its maintenance only means an unnecessary added expense in government to be met by an already unduly burdened taxpayer.

Furthermore, impartial regulation is the only safeguard against political manipulation, with its possibilities of unscientific and discriminatory rates and revenue inadequate to care for the expense of operation and fixed charges. It is certain if the state is qualified to regulate private utilities it is equally as well qualified to regulate municipal utilities. The nature of ownership or operation does not warrant any exception in the application of the principle and practice of state regulation. Again, impartial regulation is the only real assurance of a disinterested disclosure of the facts to determine the success or failure of municipally owned or operated utilities. Such representation of the facts, together with a showing of the extent to which the elimination of taxes has been a factor in influencing the cost of service by shifting taxes previously borne by the ratepayer to the taxpayer, are the only means to set forth true comparisons of the operation of such utilities with those privately owned or operated. The municipally owned or operated utility subject at least to proper accounting practices, with its property properly valued and required to report its operations in detail in like manner as privately owned or operated utilities will not be able to make a favorable showing in defense of the personnel of the administration in power by deferring maintenance, failing to set up proper reserves for depreciation or shifting items of expense to other departments.

The user of service should pay the cost of service applicable to his class of use. The more free regulation is from the influence of politics the more equitable and scientific will be its administration. Consequently, the greater will be the assurances that each user pays his just share of the cost of service and that no user is favored at the expense of another either because of lack of proper regulation or political expediency, and the better the taxpayer will be protected from making up in revenue what the ratepayer does not provide. Competent regulation is the taxpayer's only safeguard against being made the goat of incompetent management just as it is the ratepayer's only safeguard, whether it be a municipal or private utility, against unjust charges and inadequate service.

Public ownership should stand or fall upon its merits as disclosed by a true presentation of the facts.

The municipality is the creature of the state and if the state's protection is good for the people of some municipalities it should be good for all of them.

If the municipally owned or operated utility is efficiently and fairly conducted then the municipality has nothing to fear from such regulation and if it is not so conducted then the ratepayer and taxpayer have everything to gain.

To those industries and utilities who are assuming the role of interested spectators in the campaign for public ownership of the light and power business we would sound a word of warning. If they are planning to attend the funeral of the power industry, we would advise them to stop at the undertaker's on their way home and order their own caskets. Their turn is next. Attention might be called to the move in Washington to place telephone companies under the regulation of the cities in which they operate. The Manufacturer, in a recent editorial, has the following to say on this subject:

A Menace to All Private Enterprise

The State of Washington is to be harassed with an initiative measure which would provide for "home rule" permitting cities in the state to regulate telephone companies within their own boundaries, instead of having telephone companies come under the jurisdiction of the state department of public works, which department corresponds to public service commissions in other states. In other words, the proposed measure would step back twenty years in the matter of public utility regulation, and throw the telephone companies back into ward politics where they would be the playthings of every political administration.

Corruption that developed under this practice in years past, was the reason for establishing state regulation, which has taken state public service companies, including telephones, out of politics.

The term "home rule" is a misnomer and misleads the voter. "Home rule" means political rule, rather than scientific rate regulation by duly constituted authorities capable of giving their whole time and attention to the subject.

The agitation for "home rule" is really a compliment to state regulation. The movement does not come from the

people, but is inaugurated by politicians who, through state regulation, have lost their opportunity to juggle local public utilities by making them campaign issues.

The same publication points out some of the inherent weaknesses in the scheme for public control of the electric power companies of that state. Concerning this phase of the general socialistic move, the paper says:

A meeting has just been held in Seattle, Washington, to put the finishing touches on a measure that will be submitted to the people to launch the state in the development of hydroelectric power with public funds.

It is interesting to note that those attending the meeting and the speakers favoring this socialistic measure were practically all public officials or ex-public officials. Of course, the movement is heralded as a campaign "to break the grasp of the power trust and save for future generations the natural resources of the state."

This is the same cry that was raised in California when the people were asked to mortgage the state for $500,000,000 for political development of hydroelectric power. The measure was defeated by a vote of over two to one in a state election. There is no "power trust" under state regulation.

There is no demand on part of public for state development of industry. The whole program is worked up as a political proposition for the purpose of appealing to large numbers of voters who are uninformed or misinformed on the subject.

Any person who cares to investigate will find that 85 per cent of the undeveloped water power in the United States is under federal control. To utilize this power the applicant must get a lease from the government for a period not exceeding 50 years. At the expiration of such time the government may take the property over at actual cost or extend the lease. Thus, it is impossible under our present laws to violate the rights of future generations.

The supporters of state ownership resist most aggressively any suggestion that publicly owned plants be required to pay taxes the same as any other industry, thus relieving the general taxpayer from the double load he must carry under our present laws which exempt publicly owned property from taxation.

As an advocate of the state ownership scheme says: "An elaborate legal structure for the preservation of the public's interest in the state's white coal resources will be necessary eventually."

Wahl in Fresno (Calif.) Bee.

THE FAITHLESS HUSBAND

This would naturally follow as part of the spoils of political operation of industry involving the expenditure of hundreds of millions of dollars. The taxpayer would foot this additional bill for the publicly owned properties which would go untaxed, although they doubled the number of employees on the public payrolls.

No supporter of the measure so much as mentions the subject of taxation. Every citizen who thinks, knows that such an undertaking would increase the tax bill enormously. There is no shortage of power in the West and the whole conduct of public utility industry, including regulation of service rendered and rates charged, is under public control in the hands of state regulating and rate making bodies.

Private control of public utilities with governmental regulation has been successful in a way that public control and operation has never even approximated where tried. The initiative and good management obtained by privately controlled companies is the thing lacking under political or public ownership plans.

If the state of Washington can be loaded with a mortgage aggregating hundreds of millions of dollars for state development of industry, what a mecca it will be for the job-hunting politician and thousands of additional employees on the public payroll.

Commission Regulation Defended

Politicians often unjustly criticise those state regulatory bodies which are charged with supervision of public utilities. The charge is made that such organizations fail to accomplish their purpose, which, in the mind of the politician, is to reduce rates. Such attacks are made at times and in localities where municipal or government ownership of a particular utility is an issue. In Washington, where such charges have been made, the Washington State Weekly (Seattle) rises to the defense of commission regulation in the following editorial:

The attitude of mind most difficult to understand—unless the individual possessing it is a demagogic politician—is that of the jaundiced person who thinks public utility regulation is a failure because regulatory bodies have had to raise rates many times instead of lowering them.

Regulation is not a failure. It is a success. It has resulted in better service all along the line from all utilities, except the municipally owned utilities, over which those commissions have no jurisdiction.

Rates are generally lower than a couple of decades ago, and average much lower over the whole range of utility service.

What we must have is service. The regulatory body sees that we get it, and good service, too.

But if the utility lives and grows and expands as demand for service increases, it must have let-live rates for that service.

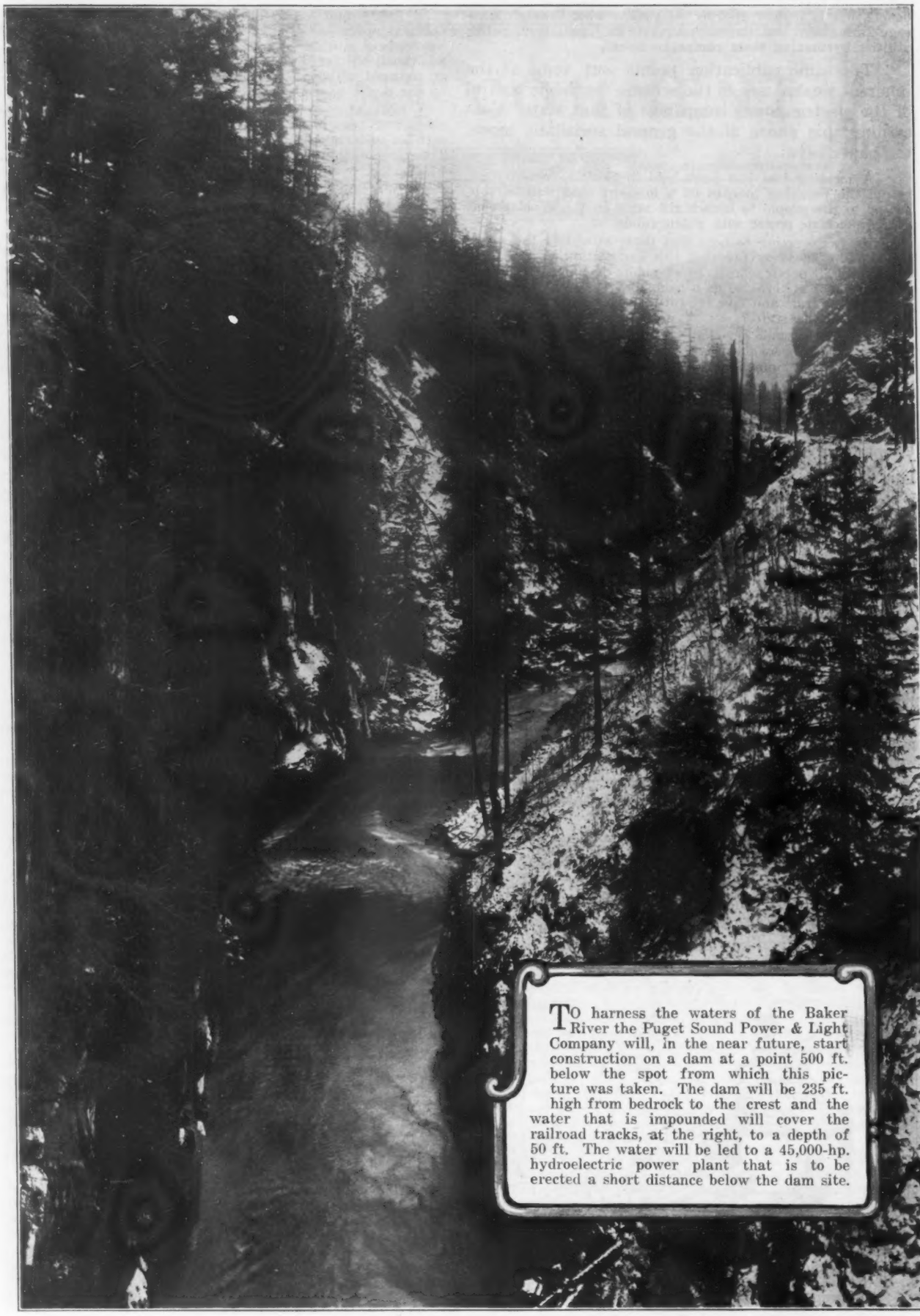
The public service regulatory bodies see that they get such rates—no more and no less. To grant higher rates is often as necessary a public duty as to lower them.

The regulatory officials that have the intelligence to see their duty and courage to do it, deserve at once the support and respect of the public.

In this connection, the remarks printed by the Oregon Voter (Portland), on the subject of taxation of utilities, will be of interest. This paper says:

First, if another tax is added to the utilities, it will have to be paid by the patrons of the utilities in the form of increased rate or a direct addition of the amount of the tax on each month's service bill.

Second, if it is made harder for the utilities to operate in Oregon, through increased costs and the resultant increased rates, it will be just that much harder for them to obtain the necessary new capital required for their extension. The farmers are especially concerned as to extension of existing utilities, as they are anxious to gain the benefits of their service if the utilities can get the capital wherewith to extend further into rural districts.



TO harness the waters of the Baker River the Puget Sound Power & Light Company will, in the near future, start construction on a dam at a point 500 ft. below the spot from which this picture was taken. The dam will be 235 ft. high from bedrock to the crest and the water that is impounded will cover the railroad tracks, at the right, to a depth of 50 ft. The water will be led to a 45,000-hp. hydroelectric power plant that is to be erected a short distance below the dam site.

Setting a Stock Sales Record

By John T. Bartlett

IN ten days time the Public Service Company of Colorado sold 16,579 shares of stock to 6½ per cent of its consumers. In achieving this record many novel ideas were perfected both for the organization and execution of customer-ownership campaigns. In this story the methods employed are described in detail.

CUSTOMER ownership campaigns of the future may learn something from Colorado. Here is a story of achievement that, I believe, sets a record. In all, 16,579 shares of stock in the Public Service Company of Colorado were sold to customers in a single ten-day campaign. About 6½ per cent of the company's 80,000 customers were thus secured as stockholders. The company's employees, acting as salesmen, sold 9-10 shares per employee in Denver, the principal city served. All of this was accomplished at a cost for advertising of approximately $1 per share sold.

At a time when there was much general pessimism concerning the public's ability to subscribe liberally, 6,244 shares were actually sold for cash. Northern Colorado cities served by the company came through with liberal subscriptions. At Cheyenne 17 per cent of all customers purchased stock.

Workingmen contributed the bulk of the subscriptions. The stock offered was 7 per cent preferred, at a price to net about 7½ per cent. A monthly payment plan, $10 down, $10 a month, was offered, one feature of which was that the customer-buyer obtained title immediately, and became the recipient of monthly dividend checks, the company retaining possession of the stock through power of attorney until the stock should be fully paid for.

The Denver campaign is worthy of study because through skillful co-ordination of advertising and selling effort, and efficient campaign methods within the organization, 5,850 people purchased stock in a ten-day campaign. New York headquarters of the Doherty properties supplied men and plans. Procedure on the ground was adapted to Denver conditions, cooperating with the Public Service Company of Colorado's publicity department on publicity and with the management in perfecting means and methods.

The campaign formally opened Nov. 10. The initial story of it, so far as the Denver and Colorado public was concerned, was made public with a full-page newspaper advertisement on Nov. 5, appearing in all dailies in the territory. This was followed by other full-page advertisements on the two days following. The initial advertisement, headed, "You Can Share in the Earnings of Your Home Public Utility Company," was illustrated with sketches of the company's main office building at Denver, of the present plant, of the new plant being built at Valmont, and an inspirational sketch in which a workingman stood pointing to a plant, "Part of it belongs to me."

In the plan, this advertisement, which went into extensive detail concerning the company and its business, was designed to sell the company to the public. The next page advertisement had for its purpose selling the reader on the attractiveness of public utility securities as investments. The third advertisement, showing a line of customers approaching the cashier's window to pay light bills, had still another point of attack, as the heading shows. It read, "You can help to make earnings possible: Why not share in these earnings?"

This advertisement contained a list of eight leading Denver banks—some of the strongest financial institutions in the Intermountain region—which, it was stated, would receive subscriptions. Customers in other than Denver territory were told that leading banks of their sections would serve them also. The advertisement announced that if the reader was a customer of the company, his mail on Nov. 8 would contain "an announcement of interest."

The four-page letter which reached all customers on Nov. 8 was printed in two colors, illustrated with sketches, and gave an attractive presentation of the security offered, the high yield, the soundness of the company, its prospects, the relatively small amount of stock offered (10,000 shares, only about one share per customer), and the dividend-payment plan. It inclosed a subscription blank. The customer could hand his subscription in at the company's office, to any employee, or to a bank.

This was the way with which the company opened the campaign, followed up by detailed selling effort which will be described later. The newspaper advertising campaign continued thereafter, but much smaller space was used. Advertising in newspaper did its heaviest work before the company employees (the salesmen of the undertaking) had begun to work. Later advertisements in the newspaper series used such headings as, "A Security Recommended by People Who Know," "Next to National Banks in Freedom From Failure," "One Business That Must Go On," "Your Income Brought Right to Your Home," "Yes, But Suppose I Need My Money." The advertisement mentioned last explained the offer of the company to serve the customer in the resale of the security at any time.

The concentration of advertising effort before the ten-day campaign had really begun, a point of which careful note should be taken, was enhanced further by direct mail advertising matter which went out on Nov. 9. This was a small broadside, and it bore on the address side, "An Employee Will Call."

A sketch of an employee at the door was given. After explaining that an employee would call, the full inner side gave additional matter under the title, "Just What This Security Offers You." This was pointed with statements that any employee could take orders for stock, and, "Employees have first-hand facts. Let them tell you about Public Service Company of Colorado."

Just as the initial newspaper advertising had canvassed readers on the stock offering, and as the letter to all customers had repeated the message, so did this, "An Employee Will Call," broadside do it again. As a matter of fact, many subscriptions came in by mail and otherwise, showing many brought to the point of action by printed salesmanship alone.

However, all the foregoing was working toward a complete job. This, following advertising matter just described, culminated with the employee's call. Note the singular word. **One call.** Employees were not expected to make more than one call to make a sale. They were told to close on one call, not to plan second calls.

At this call, the employee, according to instructions, explained 10 points. In the little booklet of instructions given to all workers, entitled, "BOOK OF FACTS About Giving Customers An Opportunity to Buy 7 Per Cent Preferred Stock of the Public Service Company of Colorado,"—incidentally, a story in itself—the employee was told to explain these, and how. If he wasn't able to explain them, he was told to read them to the prospect. If he did not feel competent to do either, he was told to hand the customer-prospect a little yellow leaflet entitled, "Partnership Opportunity," which bore on the front, "Our Company has asked me to give you this opportunity to become a profit-sharing partner with us. They have asked me to stay while you read this little booklet because you may wish to ask some questions." Since the 10 points the employee-salesmen were asked to make were an important feature of the campaign, it is well perhaps to quote them here, as they were printed on the yellow leaflet, and as they were given to the men in the instruction-booklet.

The Company has asked me to tell you these ten points about our organization and its preferred stock.

1. You can become a partner in our Company by investing some of your savings in the 7 per cent preferred stock of the Public Service Company of Colorado.

2. This stock represents an ownership in our Company and all its property. On each share of the stock the Company will pay you $7 a year, payable monthly.

3. You may feel sure you will always get these dividends and that the stock is an absolutely safe investment. I believe it because I know our Company and the men who run it, and I believe in them; I know that behind this investment are power houses, lines, buildings, substations, transformers, gas plants and distribution systems; property that is worth a good deal more than all the bonds and all the preferred stock outstanding, so there is real property behind the investment. I know that our company is selling a necessity, without competition and under proper regulation. I know the Company earnings are growing steadily. I know the Company is in a sound financial position. I believe that you and

AN EMPLOYEE of the Public Service Company of Colorado will pay you a visit within the next few days and extend to you an opportunity to become a part owner and profit-sharer in your leading home public utility.
An invitation to become a partner in the Public Service Company of Colorado was extended to you in a letter which you recently received. You can attain this partnership by purchasing the 7% preferred stock of the Company.
PUBLIC SERVICE COMPANY of COLORADO
A letter to our customers
WOULD you like to own part of a strong, prosperous and growing home Company, and to share in its earnings? An opportunity to become a profit-sharing partner in the PUBLIC SERVICE COMPANY OF COLORADO will be given, beginning November 10th, to you and to every customer of the Company.
An opportunity of this kind was never before offered to our customers.
The Company's purpose in offering you this opportunity is frankly to secure the largest possible measure of customer-ownership.
The money which will be raised by the sale of this security and which will be used to pay for the developing of power, the extension of lines, additions to gas works, and for similar purposes, could be raised more easily by selling this issue on Eastern security-houses, to be distributed among the capitalists of the East.
The Company is pledged, however, to a policy of customer-ownership.
To you, as a customer of the Company, customer-ownership offers a chance to become, on a favorable basis, a profit-sharing partner in one of the largest and soundest power and gas companies west of the Mississippi.
To the Company customer-ownership will mean a steady increase in public good-will and customer co-operation.
To customers and Company alike it will give a mutual interest in bringing to the territory we serve factories and mills, payrolls and purchasers, population and prosperity.
To carry out this profit-sharing plan, the Company will sell to its customers, and to members of their immediate families and friends, 10,000 shares of its 7% cumulative preferred stock. This stock will be sold at $93.50 a share—an extremely favorable price.
Every dollar you invest with the Company makes you an owner of a proportionate part of the Company's business and of its property—power plants, lines, sub-stations, buildings, transformers, gas plants, meters. On each share you buy the Company agrees to pay you, out of earnings, $7.00 a year in dividends—a return of virtually 7½% on your money.
SMALL EARNINGS OF A COLORADO POWER COMPANY BE SHIPPED EAST?
If you need to get your money out
"Yes, but Suppose I Need My Money"
The bankers call it "convertibility" or "marketability."
But the average man, investing his savings, expresses the same idea thus: "I put my money into something I can get it out of easily."
Your investments will tend to promote sound sleep at night, if, when you invest, you watch that point. Much I need my money, I can always get it."
It is in recognition of this fact that The Public Service Company of Colorado maintains its Resale Service. This is conducted for the benefit only of such of its stockholders as buy direct from Company employees.
The Company has always been able to resell the Preferred shares of any of our stockholders who bought direct from us and who needed to get their money out. We believe we can always do so. A small charge is made for this resale service.
The good faith and the honesty of The Public Service Company of Colorado is behind this resale service—you feel sure that our customers will ask no more.
The price of our Preferred shares is $93.50 a share.
From November 10 to 19 any employee can take your order.
The Public Service Company
OF COLORADO
Successor by Merger to
THE DENVER GAS & ELECTRIC LIGHT COMPANY
and THE WESTERN LIGHT & POWER CO.

Samples of some of the circulars and advertisements used in the stock selling campaign.

every other person who owns this stock will always get their dividends.

You agree with me, don't you, that this stock is a safe investment?

4. Our preferred stock is not only a safe investment, but it is a convenient investment. There are no coupons to clip, no mortgages, no foreclosures, no repairs, no rents to collect. There is no worry, no bother, nothing to do but cash your monthly dividend checks.

5. It is not only a convenient investment to own but it is easy to get your money. If you need to sell your stock, you can turn it over to us for resale. Our Company makes a charge of $2 a share for this resale service.

6. The Company could easily sell to eastern brokers all the stock it has available. We believe, however, in customer ownership, and prefer to have as partners people here at home.

7. Because we are anxious to get our customers to become partners in our Company, this stock will be sold, in this campaign, only to customers and to members of their immediate families or friends.

8. As the supply of this stock now available is very small compared with the number of our customers, we can sell not more than 20 shares to any one purchaser.

9. This security is now selling for less than it is worth. We feel sure that the price will soon advance.

10. Your money invested with us, at the price you can now purchase this stock, returns you 7½ per cent. This is a high return, safety considered.

You can purchase this security, if you wish, on the dividend payment plan—$10 down and $10 per month.

A great many of the employees of our Company already own shares of this stock. We all believe in the **security** and in the **Company.**

In conclusion, the leaflet invited the reader to ask any questions, on any of the mentioned points, which occurred to him. "I have first-hand information about the company because I work for it," the leaflet stated. "I shall be pleased to answer any questions you might like to ask and would cheerfully give personal attention to your order for shares. Please tell me where you want your dividend checks addressed and please put your name on the order blank just as you want it to appear on the stock certificate."

The calls, in the manner mentioned, were made by employees on people whose names had already been furnished by individuals to the publicity office. Every employee was asked to turn in at least ten names, later calling on each. Actually, a large number of employees turned in many more than ten names.

The foregoing has outlined the procedure leading to the sale. It does not, however, reveal the measures taken to keep the organization on its toes, at full speed, for the ten-day campaign. Organization began about two weeks before the campaign opened. Departmental meetings were held in Denver, and in the different cities and towns in the Western division. General officials of the company or department heads presided. The selling plan was thoroughly explained. The system to be followed by employee-salesmen was carefully gone into.

A final big dinner was held in Denver the night before the campaign opened.

At Denver, the organization was divided into "armies," each with an organization of general, captains, etc. The generals were V. L. Board, general superintendent, Rufus Gentry, Denver new-business manager, John E. Loiseau, secretary of the company, Harry Hughes, treasurer, and Salisbury Smith, manager of the securities department. Assistant General Manager Charles Semrad was general of an army which included the Western division. Here the different towns and cities were regarded as separate units.

Four prizes were offered in each of the divisions. There was $100 for the employee selling the largest number of shares of stock, $50 for second highest; $100 for the most new stockholders, with a second of $50. John E. Barker of the purchasing department was high man in sweepstakes, selling 388 shares. G. A. Hamilton, of the hotel and restaurant division, was next with 314 shares. The high man in the Western division was F. S. Peterson, an engineer in the electric distribution department at Cheyenne. He sold 188 shares. The Denver new business department topped all others, selling 3,528 shares. The electric department was next with 2,626 shares. In the Western division, Boulder sold 1,454 shares. General Board's army was first, with 4,340 shares, and General Gentry's second, 3,347 shares. General Semrad's army sold 3,244 shares, with the high average of 14.7 shares per employee. An unusual development was support in towns buying current at wholesale of the company. Several of these wholesale customers sold stock extensively.

A campaign inspirational device that proved most effective was a miniature daily newspaper, "Daily News of the Public Service Company of Colorado." This was distributed to all employees each morning, there being fifteen issues in all, the final an "Armistice Signed" edition on Nov. 24.

This paper printed the standing of sales groups from day to day, and gave many intimate sidelights on the progress of the campaign. The "Daily News" never gave morale a chance to slip a cog. Window displays were used throughout the campaign. Selling 16,579 shares, approximately 50,000 people were called on.

To all the new customer-shareholders, the company, by Clare N. Stannard, commercial manager, sent a letter of thanks. This letter, however, did not go out until the first dividend checks, Dec. 1, were mailed. The reaction of many from this circumstance was to come in and buy more shares.

Not all the employees had friends to call on. Some of the measures used will illustrate the spirit of the organization. One of the office men visited fifteen stores in each of which he bought a spool of cotton. With this opening, he talked stock to the salesperson. He sold twelve shares of stock! An employee of Swedish extraction, at a loss for people to call on, picked names ending in "sen" and "son" from the directory. He made friends and sold a whole lot of stock. A new employee from Iowa canvassed house-to-house for five days, with little luck. Then he tackled downtown office buildings, and in the first sold twenty shares after talking to but four people. There were countless similar experiences.

It was a great campaign, from start to finish, from every angle. It didn't "just happen." It resulted from skilled planning and execution.

National Electrical Code Circuit Grounding Requirements

By Claude W. Mitchell
Electrical Engineer, Board of Fire Underwriters of the Pacific, San Francisco, California

IN this article Mr. Mitchell describes fully the provisions of the new Code governing the matter of circuit grounds. As this is perhaps one of the most important sections of the entire Code every contractor-dealer and constructionist will be interested in the details explained herein.

PRIMARILY, low-potential, alternating current circuits are grounded for the purpose of minimizing the life hazard. The voltage of the low-potential circuit is not high enough under normal conditions to cause death or injury, ordinarily. However, cases are on record in which death has ceen caused by contact with wires of ordinary house lighting circuits

The real hazard of low-potential circuits lies in the fact that there is always present the possibility of having impressed upon them higher potentials through contact with wires of high-potential circuits or through leaks in insulation between windings of transformers. Such a contact or leakage places wires of the low-potential circuit at practically the full voltage above ground of the high-potential circuit unless the low-potential circuit is grounded through a low resistance. If this ground connection does not exist then it is liable to be formed through the body of a person coming in contact with electric-light fixtures or other appliances or apparatus connected to the low-potential circuit and, probably, with results fatal to the person. It is apparent, therefore, that it is extremely desirable that low-potential alternating-current circuits have permanent and reliable ground connections having resistance as low as it is possible to obtain. And it is the belief that this may be attained through application of the rules contained in Sections 901 to 906, inclusive, of the National Electrical Code.

As these sections include rules for grounding of lightning arresters, equipment, conduit, armored cable, etc., as well as low-potential circuits, it has seemed desirable for this article to deal with those which relate to the latter only.

The rules state that "alternating-current system shall be grounded if the maximum difference of potential between the grounded point and any other point on the circuit does not exceed 150 volts." It is recommended, also, that such systems be grounded if the difference of potential exceeds 150 volts but does not exceed 300 volts. "The connection with the ground on alternating-current systems shall be made at each service before being connected to the line; provided, however, that by permission of the inspection department the connection may be made on or near the transformer, or transformers, or by connection to a system of ground wire."

The provision that ground connection at the service shall be made before being connected to the line (i.e., outside distribution system), permits the inspector to assure himself that such connection has been made properly before certifying that the installation is ready for connection to current supply lines.

In the great majority of cases the requirement for grounding at each service makes it highly improbable, because of the number of grounds, that there will be at any time an entire loss of the ground connection. Another advantage of multiple ground connections is that, approximately, the resistance varies inversely as the number of such connections. One possible disadvantage of multiple ground connections is that because of unbalanced loads or other reasons there may be a flow of current through and between different ground connections. But the advantages of assured continuity and reliability which are obtained through the installation of multiple grounds will generally more than offset the disadvantage of possible flow of current. Unless the unbalancing of loads is extreme, or other causes very abnormal, this current will be very small and heating or electrolysis resulting from this small alternating current may be considered as a negligible quantity.

The rules provide that the connection and contact with the ground shall be permanent and effective and shall always be made to an active, continuous, metallic underground water piping system if one is available. In the case of a multiple ground for an alternating current secondary the point of connection to the piping system may be on the house side of the water meter but care shall be taken to keep the connection with the underground piping system continuous and permanent by bonding all parts of the piping system which are liable to become disconnected, as at meters and service unions, by means of a shunt consisting of two approved clamps and a conductor of the same size as the grounding conductor. Gas piping shall not be used as a ground for circuits.

Without doubt an active, continuous, metallic underground water piping system constitutes the best ground for electric circuits. There should be no objection on the part of managers or owners of waterworks systems to the grounding of low-potential alternating current circuits to these systems in the manner prescribed above. Any possi-

bility of injury to men removing water meters or doing other work on the service pipe lines may be eliminated entirely if ground connections are removed before doing the work.

If the alternating current system service ground connection is made to a water pipe on the house side of a water meter and such meter is insulated from the rest of the water piping system, then, in effect, the ground connection may be considered as being made to a purely local piping system. The resistance of such grounds probably would be extremely variable as the length of buried pipe would vary from several feet to none at all and the nature of the soil and moisture conditions would be the same in very few cases, if any. The rules require that the combined resistances of the grounding wire and the connection with the ground shall not exceed 3 ohms for water pipe connections. If such conditions, due to insulating of water pipe joints and meters or other causes, are such that this limit will be exceeded then another method shall be adopted.

If circuits are to be grounded at the services where grounding on water piping systems is undesirable or impracticable, practically the only other method which may be employed is the construction of artificial grounds such as buried plates, driven pipes or driven rods. In most cases the buried plates would not be practicable for use at services. If they are used they shall be at least .06 inch in thickness if of copper, or not less than ¼ inch in thickness if of iron. The combined resistances of the grounding wire and the connection with the ground shall not exceed 25 ohms for buried grounds. Each ground shall present not less than 2 sq. ft. of surface to exterior soil but additional area will generally be necessary in order that the maximum limit of 25 ohms shall not be exceeded. Where it is impracticable with one artificial ground to keep within this limit, two artificial grounds shall be provided. These shall have a combined area of not less than 4 sq. ft. and shall be placed at least 6 feet apart.

If driven pipes or driven rods are used the provisions of the preceding paragraph relating to resistance and duplication of grounds shall apply to these also. Artificial grounds, whether buried plates, driven pipes or driven rods shall be embedded below permanent moisture level, where practicable.

Ground pipes of iron or steel shall have an external diameter of not less than ¾ in. Under this rule a ½-in. pipe is the smallest permissible. In order that each ground shall present not less than 2 sq. ft. of surface to the exterior soil it is necessary to drive a ½-in. pipe so that a length of 10 ft. is below the surface of the soil; a ¾-in. pipe, 7½ ft. and a 1-in. pipe, approximately 6 ft. Approved ground rods shall be not less than ½ in. in diameter. To comply with exposed area requirements a ½-in. rod shall be driven so that there will be below the surface of the soil a length of 15 ft.; a ¾-in. rod, 10 ft. or a 1-in. rod, 7½ ft. Some safety codes specify 6 ft. as a minimum for depth of driven grounds. To comply with this would require a 1-in. pipe or a 1¼-in. rod.

Under certain conditions permission may be given by the inspection department to waive the requirement for grounding low-potential alternating-current systems at each service, accepting in lieu thereof ground connections on, or near the transformer, or transformers, or by connection to a system ground wire. The requirements for ground connections at or near transformers are identical, practically, with those for service connections as outlined in the preceding paragraphs. Preference should be given to suitable underground water-piping systems, if available. Otherwise, artificial grounds will have to be resorted to and, in all probability, more than one will be necessary at each transformer or bank of transformers in order to obtain a ground connection having resistance sufficiently low. Because of the location of transformers it is quite often impracticable, if not absolutely impossible, to obtain ground connections which may be depended upon with any degree of certainty during all seasons of the year. For this reason inspection departments should not grant this special permission, as indicated in Rule 902-d, if multiple service ground connections are feasible, especially as a transformer ground may be the only one on a system serving quite a large area and loss of this one ground connection might introduce high potential upon circuits in a large number of buildings at the same time.

In localities where water pipes are not available and soil conditions such that good grounds are difficult to obtain the installation of a system common ground wire probably is the best solution of the grounding problem. A number of secondary circuits are connected together through this common ground wire, which is grounded at each transformer and at other points along the line where good ground connections may be had.

Regardless of the ground connection employed the code provides for size of conductor as follows:

"The grounding conductor for an alternating current system shall have an ampere capacity not less than one-fifth that of the conductor to which it is attached, but in no case shall the grounding conductor be smaller than No. 8 and it need not be larger than No. 0.

"The insulation and installation of the grounding wire shall conform to all requirements of the Code applying to wires of the voltage of the circuit to which the grounding wire is attached."

A careful consideration of the various methods of grounding, without question, places at the head of the list as most desirable, that of multiple ground connections to an active continuous, metallic, underground water piping system; the multiplicity of grounds being obtained by making the connection at each low-potential service of the electric system. In addition to the advantages of such a method which have been touched upon, the Code provides another which simplifies the grounding problem with respect to equipment, conduit, etc. The rule covering this is as follows:

"The conductor used for grounding a circuit wire may be used also for grounding equipment, conduit, armored cable, metal raceway and the like when the inspection department has granted permission and the secondary system is grounded at the service; otherwise, separate grounding conductors shall be used for grounding the circuit and for grounding the equipment, conduit, armored cable, metal raceway and the like."

Radio Installations in Apartments and Homes

By Robert J. Stull

Radio Specialist, Frank J. Klimm Company, San Francisco, Calif.

THE increasing demand for radio installations in homes and apartment buildings requires that such provision be made for this equipment that it will render the greatest possible satisfaction. Mr. Stull offers suggestions based on experience which, if followed, will help to increase the sale of these devices.

THE extreme popularity of radio for home entertainment has resulted in sales of equipment that are unprecedented. Installations have been made in practically every type of residence to be found and the apartment house and hotel as well as the private residence is now certain to have at least one receiving set. These sets have been installed in many cases by experts in radio equipment and are working with great satisfaction. Other sets which have been built by amateurs are also working successfully but there are instances, even in cases where the installation was made by one of experience, where sets are not giving the service which may rightfully be expected. In view of the ever-increasing demand for radio equipment for home use and also because of the many apparently proper methods of installation that will **not** work, it has been deemed expedient in this article to tell briefly what should and what should **not** be done when making a radio receiving set installation.

The common types of radio receiving installations may be roughly grouped into two classes. The first class may be considered as the isolated cases, such as in individual homes where there will perhaps not be more than one or two other installations within many blocks.

The second class includes installations where a group of sets are all operating near to each other, as in a closely built up section, and especially such groups as those located in hotels and apartment houses.

The Underwriters' rules governing both classes are the same as regards insulation, location, lighting protection, etc., and are everywhere subject to local ordinance. The rules in San Francisco are briefly given below but an installation should never be made until all ordinance requirements have been met. The rules are as follows:

Antennas must not be erected over street or over wires carrying 600 volts or more, nor be fastened to a pole carrying power wires.

Antennas must be 8 ft. above roofs and must not be fastened to fire escapes.

Antenna wire must be No. 14 or larger.

Antenna and leads must be supported on suitable insulators so that they will not come in electrical contact with anything.

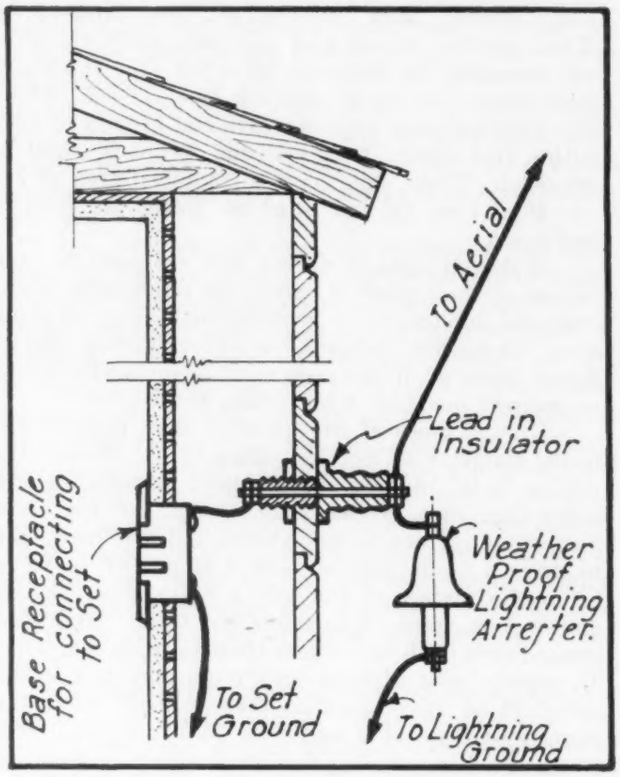
Lead-in must be insulated where it enters building.

Approved lightning arrester must be used where wires enter building, and be suitably grounded.

If wires approach within 2 in. of light or power wires, they must be encased in insulating tubing.

The above rules mean that the lead-in must be approximately as shown in the accompanying sketch.

The types of apparatus and installation, once the aerial and ground are made available, however, differ greatly in the two classes. In the isolated cases any type of receiver may be used, from a simple crystal set to a multi-tube regenerative set, without interference difficulties arising. In the case of the apartment house or closely settled district, however, the situation is entirely different. A group of aerials on a single roof, each leading to a separate apartment, will operate very unsatisfactorily if the common regenerative set is used, due to one set interfering with others and thus causing howls and squeals. A single aerial used by more than one set is still worse unless a specially designed set made for this purpose is used. In either of the above installations a regenerative receiver in one room will cause



Sketch showing correct method of leading in aerial wire and of insulating for protection in accordance with ordinary requirements. This sketch also shows method of connecting aerial with base receptacle for attaching receiving set.

howling and decrease of signal strength in all the other sets, making satisfactory reception practically impossible.

Another method of construction that is more successful, although with several drawbacks, is to have one central set operated by one person with a suitable system for connecting loud speakers at the various places desired. Several plugging-in systems for this purpose are now available.

The inherent difficulties of such a system are at once seen. The attendant at the radio set must be available at all times to satisfy the demands of a large number of users. The flexibility of an individual radio set is lost; either all of the listeners must hear the same broadcaster or nothing at all. Some places have installed two complete sets of radio with aerials well separated from each other so as to give a choice of two broadcasting sources, but here the advantage of flexibility is but slightly better.

In making up such a system several points should be borne in mind. Each outlet for a loud speaker should be so arranged, with a contact and coil, that the circuit characteristics as a whole are the same whether a horn is plugged in or not. Provision must be made for a power amplifier of sufficient current carrying capacity to supply all loud speakers.

Other types of sets are the non-regenerative tube set or the aperiodic set which, although it uses regeneration, has means for preventing local oscillations from being re-radiated from its own aerial. This type works very well on grouped aerials and even on the same aerial except that the use of a large number will probably reduce the signal strength considerably. The last type of receiver and the one probably best suited for all conditions is the non-regenerative or the non-radiating regenerative set using enough stages of amplification to give loud signals on a loop antenna, or a small inside aerial in the room itself. It is possible, with such a set, to receive on a loop inside of a building with a non-regenerative set without any of the above disadvantages.

In order to give briefly some of the more common faults of antenna installations and to obviate the possibility of these things occurring to readers of this article, a few suggestions are here given for guidance in putting in a set. These are the major points only and are subject to individual discretion.

All wires should be as straight as possible. The total length should not exceed 150 ft. Most sets work better on a much shorter aerial.

Ground leads should be short and need not be insulated unless of great length. Aerials or leads should not run parallel to power or light lines or near to grounded surfaces, such as tin roofs, conduits or water pipes.

Lead-in insulators should be water-tight or slope toward outside to prevent rain from running along the wire to the set. Never install aerial or lead wires inside of conduit or other conducting material even though insulated from it.

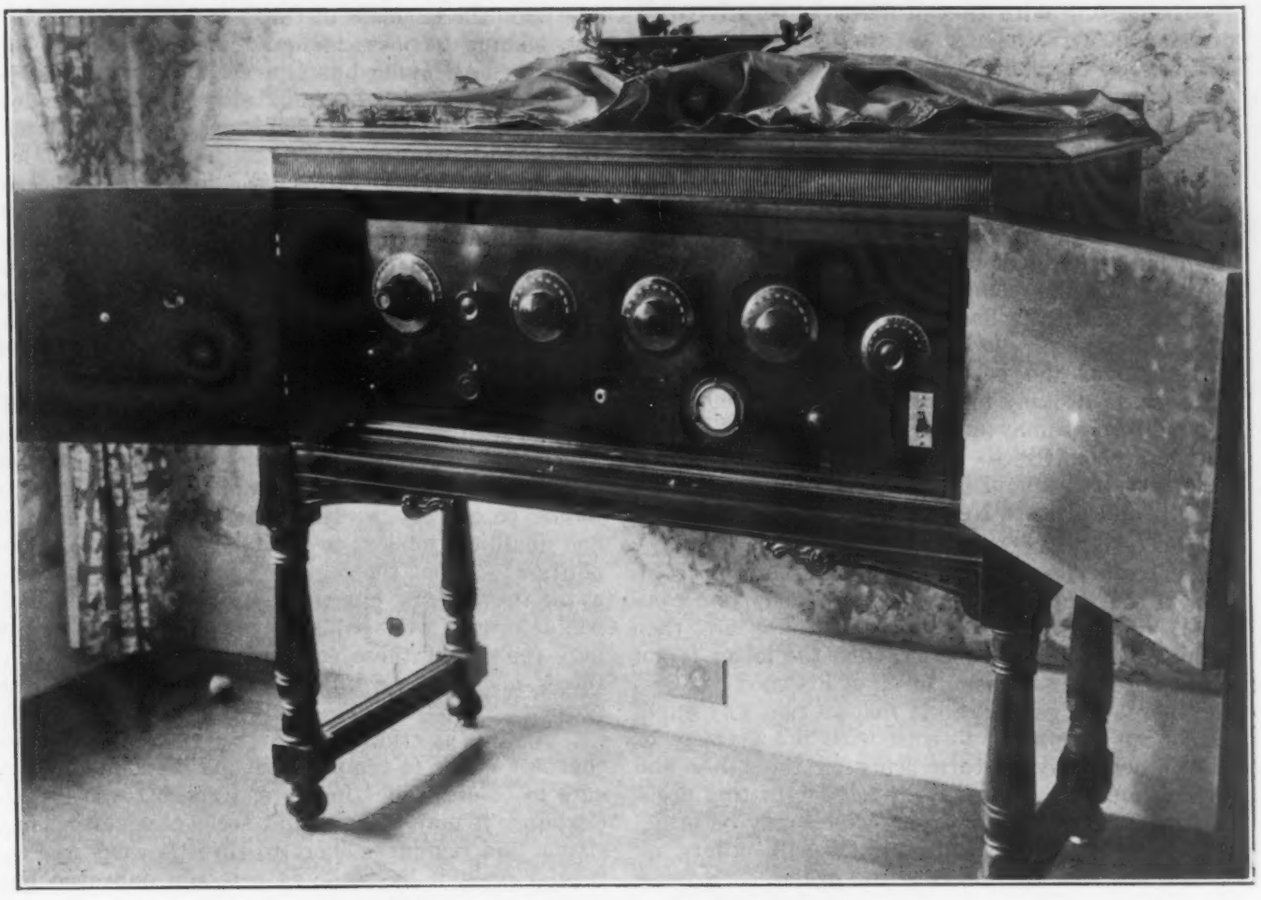


Illustration of a non-regenerative radio receiving set

Has the Pacific Coast Jobber Problems That Are His Alone?

By E. A. Kincaid
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THAT the reduction of production and distribution costs is the best way to expand the electrical market in any territory, is Mr. Kincaid's theory. This problem falls upon the shoulders of the dealer, jobber and manufacturer and in this article the position of the Pacific Coast jobber is considered.

IN view of the necessity for the western jobber to fill orders both large and small and his inability to shunt any of the small orders to the manufacturer, and in further view of the fact that the average dealer buys only in small orders, it is clear that Pacific Coast jobbers must do a good deal of unprofitable business. In fact, it is maintained by western jobbers that fully 50 per cent of the orders filled for dealers are handled at a loss. That much of the business received from dealers is handled at a loss by large jobbing houses cannot be questioned. The large jobbers have a much more elaborate organization and every sale involves many operations, in some cases as high as thirty-six. For the small jobbers the cost of handling an individual transaction at every stage as it passes through the house is much less, for the simple reason that the number of operations is much less.

In dealing with this problem jobbers have experimented with various systems of discounts. If a sliding scale discount is adopted the dealer is encouraged to increase the amount of his orders, but this may lead to overstocking on the part of the dealer. Thus, there results the danger that the dealer may be forced into bankruptcy because of inability to move his stock with sufficient rapidity to meet his bills. On the other hand, such a system of discounts often puts the small buyer at a disadvantage with his more powerful competitor with respect to prices. For this reason the dealer may be led to buy from the small jobber whose methods are irregular and subversive of the best interests of the electrical business. Thus, any method of reducing the volume of small orders may encourage the jobber whose methods are likely to demoralize trade conditions. Here is a problem for the jobber which presents marked difficulties. No matter which way it is approached there are complexities.

One other aspect of this problem requires attention. If the jobber discourages the dealer from coming to him with small orders and these are then given to the irregular jobber, then the latter is apt to ask the dealer for some or all of his good business and, moreover, get it. So it follows that any effort the jobber may make to cope with the problem of small orders may in turn bring on the other and more serious problems. With respect to this problem there are two observations which may be made. The jobber must care for the small orders or assume the risk of breaking the dealer or driving him to some cut-rate competitor. Of the two alternatives it would seem better for the jobber to care for the small order at a loss. All merchants must do some business at a loss and it is a question whether it is wise to eliminate the business which is unprofitable. For it is a fact that some of this unprofitable business draws other profitable business which could not otherwise be had. In the next place, both wholesale and retail merchants have to do business on the basis of what the traffic will bear. Prices are more often fixed on that basis than any other. The loss on some lines which must be carried has to be met on other and more profitable lines.

The Position of the Irregular Jobber

In the next place, it is a fact that jobbers have to contend with competitors whose practices may be described as piratical. A jobber who lives by preying upon the business methods designed to establish the jobbing business along sound lines may very properly be described as a pirate. If the jobber follows merchandising methods which result in his losing business to his unethical competitors, these gentlemen are then enabled to sell more goods of low standards. Here we face a difficult question concerning which there is much division of opinion. In opposition to the point of view just expressed there are those who maintain that irregular jobbers often carry high-grade stocks which have not been able to find distribution at the hands of regular jobbers. Again, it is maintained that not every consumer should be encouraged to buy high-grade merchandise. For example, why should a man who is building a cheap and inexpensive house install fixtures which are entirely out of keeping with the character of the house? Furthermore, should not the regular jobber be content to leave low-grade merchandise and unethical jobbers to the tender mercies of competition? Is not the regular jobber in a position to await the working out of the economic forces which will determine what will survive? To this the jobber may reply that these economic forces are long-run forces and that he himself is concerned with the present.

All this is true enough. But the fact remains that any effort to tamper with the economic laws is sure to be disastrous in the end and may be illegal. Certainly it may be said that society cannot permit strong and regular jobbers to throttle weak and irregular ones, if by so doing new and improved but

relatively unknown merchandise is lost to the consuming public. A stabilized jobbing business is not as important to society as the certainty that improved methods and goods will find a way to market. For my own part, I am half persuaded that irregular jobbers afford an essential way for the survival of improved products. Many a manufacturer at first produces inferior goods in order to find a market and then raises his standards as his position is strengthened, just as many regular jobbers once followed merchandising methods which they do not approve of now.

Low Priced Material an Asset or Liability?

The jobber's problem of small orders and driving business to irregular competitors has yet another important aspect. Admitting that many of the irregular jobbers do carry inferior goods, it follows that they must cater to those dealers and contractors who install inferior fixtures and do low-grade wiring. The curbstone variety of contractor underbids his competitor because he installs inferior goods and reduces the number of outlets for current. These two practices appear to go hand in hand. If it were not for the pirate jobber the pirate contractor would find it more difficult to underbid his competitor by offering high standards of workmanship and materials. The under-bidding is hard on the regular contractor and the regular dealer and it is equally hard on the power company. But the question arises as to the effect of doing away with this type of competition. Does it not have the effect of lowering costs of wiring and fixtures and thus make it possible for people to consume these goods, and current as well, who would otherwise not do so? If this is so, does it not follow that the power company gains in one way and loses in another? Is not the presence of this sort of competition, so much deplored by regulars in the electrical field, doing much to bring about improved marketing and merchandising methods as well as more economical processes of manufacturing on the part of those who count themselves regular in that they live up to a higher standard of business? The reduction of production and distributing costs is the best way to expand the electrical market and thus to stabilize it and certainly is the most effective way of putting pirates out of business. Moreover, it is a method that makes resort to any form of coercion unnecessary. That in itself is worth something.

Buying a Problem of the Retailer

To revert once more to the jobber's problem of handling unprofitable business from dealers, yet another implication is there involved; it is certain that the jobber's relations with the dealer will have much to do with the ability of the latter to remain in business. The question of just how the dealer buys is one of fundamental importance to the jobber. The rate of turnover of stock is the ratio of net sales and the average inventory in terms of cost. The practice of buying in large quantities in order to obtain a higher rate of discount leads to accumulation of stock and this cuts down the rate of turnover. The result is that the dealer's profits are reduced.

It is not uncommon to find dealers in any line of business who fully understand that buying is just as important as selling, but one could not very well expect the average contractor-dealer to grasp this matter. Therefore, it falls upon the jobber to carry on educational work among his customers with respect to the basic principles of merchandising. Some one must supply the necessary knowledge of merchandising and the burden of the lack of such information on the part of the dealer falls most heavily upon the jobber. He cannot successfully take the stand, in explaining the distribution situation to manufacturers, that appliance business does not pay because of the poor standard of merchandising ability that exists among dealers. To do so only amounts to an admission that he has not much to offer to the manufacturer in the way of outlets for goods. To admit so much simply leads the manufacturer to understand that jobber distribution has become fundamentally weak. And it must be said that manufacturers are not without a remedy in this matter. There is too much experience available in other industrial fields upon which they may draw to permit of any such a delusion.

To revert to the practice of allowing weak dealers to return goods to the jobber because they have not or cannot be sold, it may be said that such a practice is at once an admission on the part of those jobbers, who allow such a practice, that they are really carrying the dealer. Perhaps it is better for the jobber to allow the dealer to return goods and thus reduce the balance due the jobber than to drive the dealer into bankruptcy. But the choice between the two alternatives is in no sense pleasing. One must naturally ask the question, When are goods sold to dealers to be considered as sold? How long can the electrical industry put up with such practices? A jobbing business has as its foundation its dealer outlets and others. What kind of a jobbing business can be constructed on such a foundation? It is little wonder that jobbers are so much at war among themselves, that there is so much confusion in trade relations and so little harmony.

The Jobber's Relations with the Manufacturer

When all of these matters are fully thought over from the point of view of the jobber, it becomes apparent that his chief concern is to see to it that those conditions which encourage manufacturers to go over the head of the jobber do not exist. In this connection it may be well to consider the conditions that induce manufacturers to take such a step. In the first place, the manufacturer is willing enough to dispense with jobber distribution if he can find a better way to market. This means that the manufacturer will adhere to a marketing system that will give him (a) a better volume of sales and (b) reduce the costs of distribution. He will also be influenced to take this step if he can (c) make his advertising more effective and (d) maintain a better control of resale prices. Furthermore, he will be interested in such a step if thereby (e) he can better service the goods that he sells and thus increase the good will of consumers with respect to his line. Finally, (f)

he must consider such a step if he can in that way more effectively co-ordinate the operations of his factory with his sales organization. A mere enumeration should be a sufficient statement of the situation of the jobber. From these points it becomes apparent what he must do in order to maintain his place in the distributive system. To the extent that the jobber meets these problems, just to that extent will friction between him and the manufacturer be reduced. The question, therefore, of the ultimate status of the jobber in the distributive system is being worked out day by day by the jobbers actually in business.

The Manufacturers' Position in the Future

The fact that manufacturers are now distributing by means of jobbers does not carry with it any guarantee as to the future. There is an evolution in these matters as in all others and jobbers now in business are shaping their own ends and the future of wholesale distribution in the electrical field, whether they realize it or not. The manufacturer is almost continually confronted with problems growing out of his relations with the jobbing system. For one thing, it is not uncommon for manufacturers to prefer jobber distribution, but find the number of jobbers in a given center altogether too few. This is often the situation in smaller cities. Is the manufacturer to ignore the lost sales opportunities in such places in order to maintain his relations with jobbers on a regular basis? If not, then is he not justified in setting up some dealer there as a jobber? Now, on the other hand, it appears that there are too many jobbers in some of the larger cities of the country. As a result there may be excessive competition among jobbers. This situation has resulted in the organization of jobbers into trade organizations or price-cutting where such associations fail of their purpose. It has been suggested that a better organization of the electrical markets in smaller cities would remove some of the tension in the larger cities. With respect to this matter one must adopt one or the other of two alternative conclusions. There is maladjustment of the distributive system for electrical goods or else there is an actual state of overproduction. Now as a matter of fact, it is fairly certain that both conditions exist. With respect to the first, it must be obvious that manufacturers will be compelled either to open up any jobbing centers that jobbers themselves fail to develop or resort to selling directly to dealers and others. With respect to the second, it is only necessary to understand that over-production is but another name for underconsumption, for there is no such thing as absolute over-production. There may be over-production on the basis of prices that are asked for electrical goods of all sorts. That is to say, there may be more goods than consumers will absorb at existing prices. Wherever price-cutting is general, it is reasonable to assume that this is the actual condition.

The Remedy for Price-Cutting

The remedy for price-cutting is a lower cost of production and lower costs of distribution. The solution of this problem falls upon the manufacturer as well as upon distributors. The reduction of these costs will make possible a lower price and an expansion of the electrical market. When goods move in sufficient volume the chief cause of price-cutting has been wiped out. The price-cutter knows that he may so expand his sales by the practice that the increased volume will offset the reduced margin of profits. To this it may be replied that there is a limit as to what the market will absorb at any price. There is a saturation point, but it is in the control of the manufacturers and distributors. Thus one is led to conclude that the stabilization of the electrical market is in the hands of the manufacturers and distributors. Here the marginal concern, whether manufacturer or distributor, will play a vital part, for the marginal producer is the most efficient producer and under the competitive system rival concerns will have to meet his price. Eventually there will be developed standardized units of production and distribution and these will operate on the basis of the law of balanced return. That is to say the electrical industry is still young, when taken as a whole, and the most effective combinations of labor and capital have not been achieved in many plants, whether manufacturing or distributing plants. Until this movement has gone much further than at present, stabilization of the electrical industry is impossible. But let it be clearly understood that stabilization is being worked out and the standard for its achievement is the marginal manufacturer and the marginal producer of today.

Sales Volume Solves Margin Problem

When the jobbers and dealers complain about margins one is confronted with but another aspect of this same problem. There is such a thing as a margin that is too narrow, but when distributors complain about margins, manufacturers respond that the remedy is with the merchant. He must expand his volume of sales or else reduce his operating expenses. More service, better advertising, superior locations, improved buying methods tend to reduce that part of the margin that covers the costs of selling, while increased volume of sales will make possible a reduction in that part of the margin that covers profits. The expansion of the margin tends to make it possible for the less efficient distributors to survive, when, perhaps, they ought to perish. Is the manufacturer justified in removing the pressure from distributors by increasing the margins when such pressure is one of the chief inducements to efficiency? The manufacturer wants a wider market and he realizes that it is not to be attained by increasing the margins but by improving distributive processes. Margins can be made so wide that existing distributors will be able to make profits but conditions are not improved thereby, for the reason that other and less efficient distributors are induced to enter the business and they, in turn, will complain that margins are too narrow.

Broaden Electrical Market

If electrical goods are ever to become staples instead of luxuries, then the goods must be placed within reach of a sufficient number of consumers so that it may be said that the appeal is not made to a

class market. The production of luxuries may be stabilized on the basis of a class market, but a class market is a narrow market and a narrow market will not solve the problems of central stations and manufacturers. Any effort to stabilize prices at a level which will prevent the greatest number of persons from becoming consumers will throw the interests of power companies and central stations out of harmony with those of manufacturers and distributors and will lead to combination within the industry. Such combination will be by means of holding companies with integration of steps in the industry all the way from the manufacture and distribution of electrical products to the manufacture and distribution of current.

The fact is that such integration has already gone far and is growing steadily and it is simply the outgrowth of a clear understanding on the part of certain very able men that the inter-relation of the branches of the electrical industry is very close, that there is much of interdependence, which if properly understood can be utilized to the greatest good of the industry. Any effort to stabilize the industry at some higher level than the greatest possibilities of the market will prove of no more than temporary success. In the long run associations working to such an end are doomed to failure because their success would mean the blocking of progress within the industry as a whole. New producers and new distributors cannot be kept out of the market and any effort to keep them out is anti-social and uneconomic. Associations designed to fix prices must fail because they do not cure the disease. They are merely trifling with the symptoms. Where price-fixing is resorted to, whether by distributors or manufacturers and succeeds, the result is the backing up of production and operations on the basis of a narrower market. Other concerns cannot be kept from attempting to reach this market that is thus lost and so the device is destroyed by what it lives upon.

Three Questions Must Be Solved

A study of the relations of electrical manufacturers and jobbers points to some definite conclusions. There are three sets of bad conditions within the industry. (a) There has been an over-expansion of production on the part of manufacturers. They have sought to place production on the most profitable basis. That is to say, they have sought to expand production to that point which will permit of the lowest cost per unit of production. There has also been an increase in the number of establishments. This has resulted in giving those factories that are most effectively organized an advantage in the matter of price and thus other manufacturers have sought out and found ways to market that are less expensive but unusual and irregular in the opinion of the trade. (b) On the other hand, we have the very inadequate dealer outlets. (c) Between these two situations the jobber has been groping about more or less haphazardly. He has sought remedies by cooperation with manufacturers' associations on the one hand and the formation of associations of his own on the other. It has been thought that better understanding between these two groups would achieve certain promising results, but there is but little to justify this point of view when all that has been accomplished in Pacific Coast territory is taken into account. I am not here entering upon any criticism of such associations for their intentions are undoubtedly good. I am merely saying that they have not achieved constructive results worth while.

The solution of the problems growing out of the relations of the jobber with the manufacturer and the dealer will come with more light in dark places. There must be some really scientific studies made in the field of factory costs of production and just as much work must be done in the field of the costs of distribution. As to dealer outlets, it would be worth while for manufacturers and jobbers to cooperate in the establishment and operation of typical retail establishments and then study them. The California Fruit Growers' Exchange had a problem of this sort with respect to the market for orange juice and lemon juice. It found that soda fountains were selling synthetic products rather than the real thing. It wanted to find out why. To do so it set up and operated a fountain and studied the costs of doing business, the reaction of consumers and all other factors. As a result it solved this particular problem. There is no use to resort to calling names, for the manufacturers, taken as a whole, cannot establish the necessary retail outlets. Neither can distributors move goods that cost too much. A simplified system of distribution does not call for elimination of the jobber, but it does call for reduction of costs all the way up and down the line.

India Wants Electrical Goods

RECENT developments in India seem to indicate that the demand for electrical goods will be on an unprecedented scale in the near future, and the importance of having stocks available at competitive prices in the principal port cities of India cannot be too strongly emphasized if American manufacturers are to secure a fair proportion of this trade, according to a report of the United States Trade Commissioner's office in Calcutta.

During the past year, an electric plant for lighting purposes was installed in the city of Agra and the Metropolitan Vickers Company is at present engaged in building systems in the towns of Gondal and Morvi. The Mendi hydroelectric scheme in the Punjab, the Hyderabad hydroelectric and irrigation project in the Nizam's state, and the Nilgiri, Pykara and Periyar hydroelectric power projects in the Madras Presidency are bound to create a demand for all classes of electrical equipment.

According to the report, English engineering houses are well established in the field. American manufacturers without representation in India are at a disadvantage in this respect. It is essential that American manufacturers either have their own branch offices in India or arrange with local engineering firms of good standing to act as their representatives, particularly as the policy of the Indian Government tends more and more toward the purchase of equipment locally.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

Electrical Construction

By E. Earl Browne

THE misuse of proper terms descriptive of switching, control and protective apparatus has been responsible for much of the confusion that often exists. When orders for this class of material are placed or when estimating or laying out a job it is easy to correct this misunderstanding if the following definitions from "Standards of the A.I.E.E." are noted and applied:—

Switch.—A switch is a device for making, breaking or changing the connections in an electric circuit. (A switch should not be called a controller.)

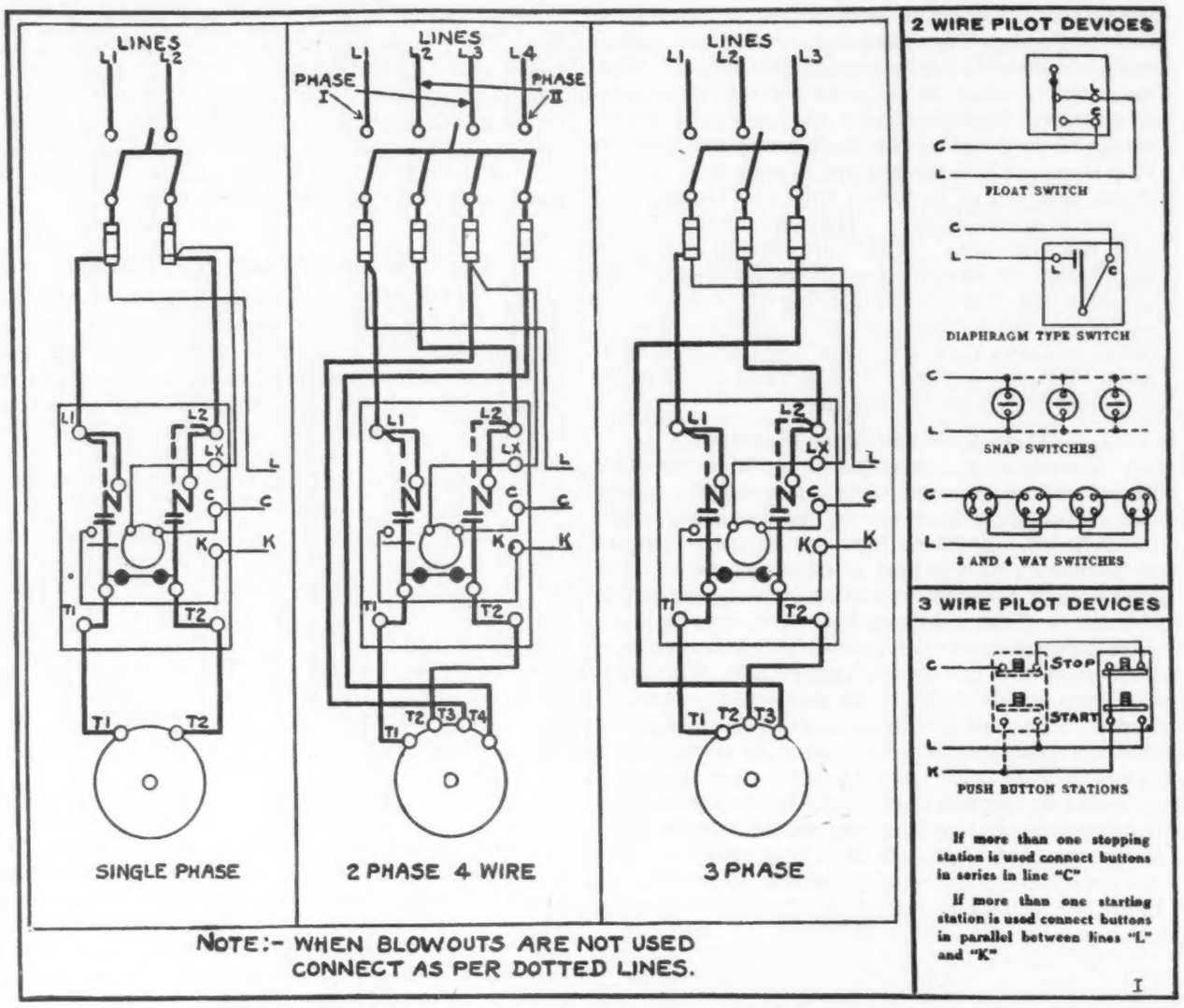


Fig. 1—Connections for Cutler-Hammer a.c. double pole magnet switches, two and three-wire control. Bulletin No. 9580 and 9600.

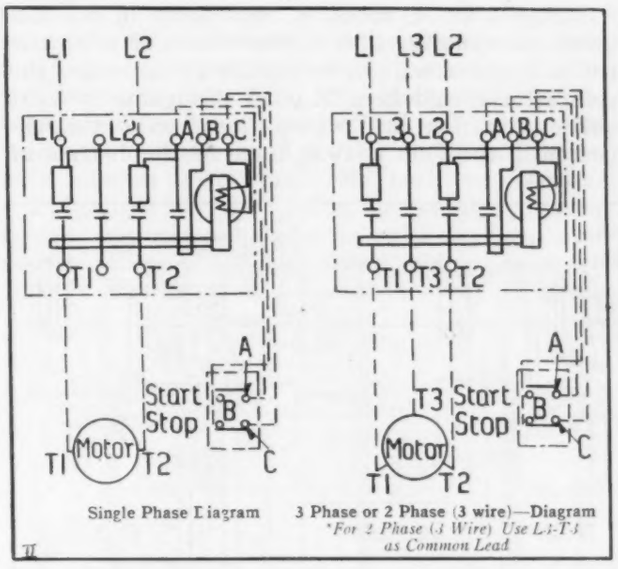


Fig. 2—Connections for Westinghouse Type F three-pole automatic starter.

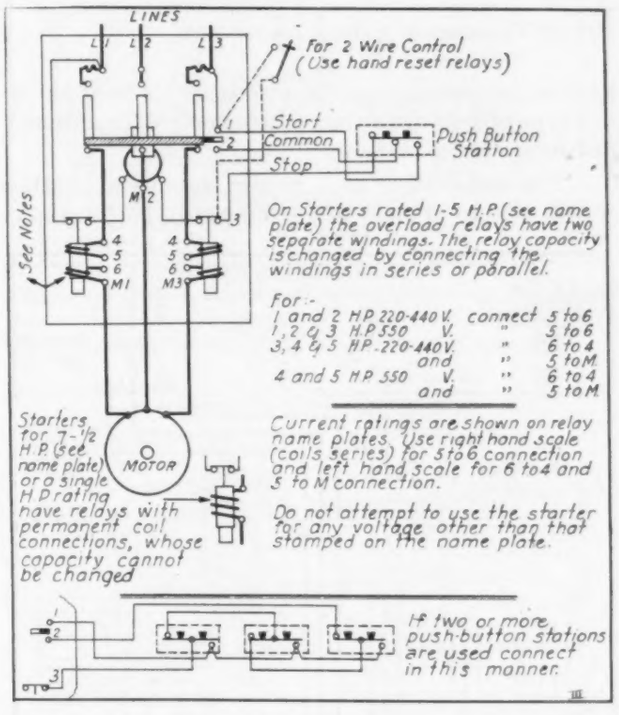

LINES
For 2 Wire Control (Use hand reset relays)
Start
Common
Stop
Push Button Station
See Notes
On Starters rated 1-5 H.P. (see name plate) the overload relays have two separate windings. The relay capacity is changed by connecting the windings in series or parallel.
For:-
1 and 2 H.P. 220-440 V. connect 5 to 6
1, 2 & 3 H.P. 550 V. " 5 to 6
3, 4 & 5 H.P. 220-440 V. " 6 to 4
and " 5 to M
4 and 5 H.P. 550 V. " 6 to 4
and " 5 to M
Starters for 7-1/2 H.P. (see name plate) or a single H.P. rating have relays with permanent coil connections, whose capacity cannot be changed
MOTOR
Current ratings are shown on relay name plates. Use right hand scale (coils series) for 5 to 6 connection and left hand scale for 6 to 4 and 5 to M connection.
Do not attempt to use the starter for any voltage other than that stamped on the name plate.
If two or more push-button stations are used connect in this manner.

Fig. 3—Wiring diagram for Allen-Bradley Type J-1552, size E, Form E, a.c. automatic motor starting switch three-pole, three-phase.

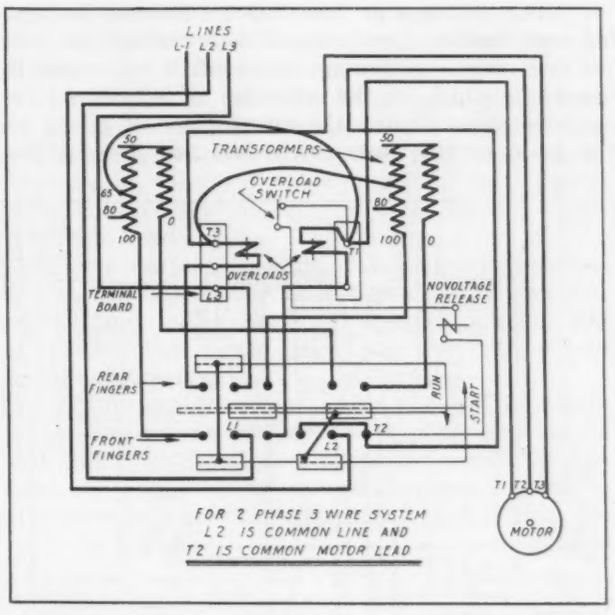


Fig. 4—Connections for Cutler-Hammer potential starter with overload and no-voltage release, for two-phase, three-wire or three-phase service.

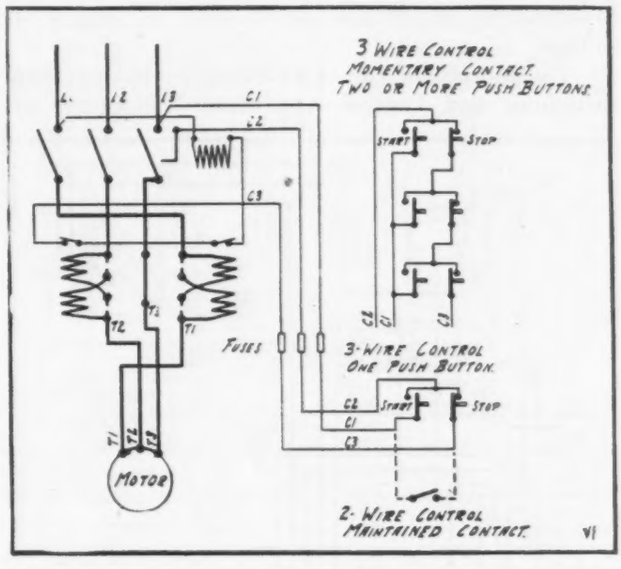


Fig. 6—Wiring diagram for Industrial Controller Company a.c. automatic starter class 8527, using three-phase service. For two-phase, three-wire system use terminals L3 and T3 for the common return wire and connect leads T3 and T4 together. For two-phase four-wire system connect line L4 straight through to T4 on motor.

Electric Controller.—An electric controller is a device, or group of devices, which is designed to control in some predetermined manner the operation of the apparatus to which it is connected.

Motor Starter.—A motor starter is an electric controller designed for accelerating a motor to normal speed in one direction of rotation. (A device designed for starting a motor in either direction of rotation is called a controller.)

Automatic Motor Starter.—An automatic motor starter is a motor starter designed to automatically control the acceleration of a motor.

Auto-Transformer Motor Starter.—An auto-transformer motor starter is a motor starter having an auto-transformer to furnish a reduced voltage for starting. The device includes the necessary switching mechanism and is frequently called a compensator or auto starter.

Under-Voltage or Low-Voltage Release Switching and Control Apparatus.—Under-voltage or low-voltage **release** switching and control apparatus is apparatus which, on the reduction or failure of voltage, operates to cause the interruption of power to the main circuit, **but which does not** prevent the re-establishment of the main circuit on return of voltage.

Figs. 1 to 11, inclusive, show some of the diagrams of connections for various makes of automatic a.c. motor starters. In wiring for these devices the contractor should keep in mind the points brought out in the article on Electrical Construction that appeared in the Feb. 1, 1924, issue of the Journal of Electricity, particularly in reference to location of and type of lock-out switches to comply with national and local safety laws.

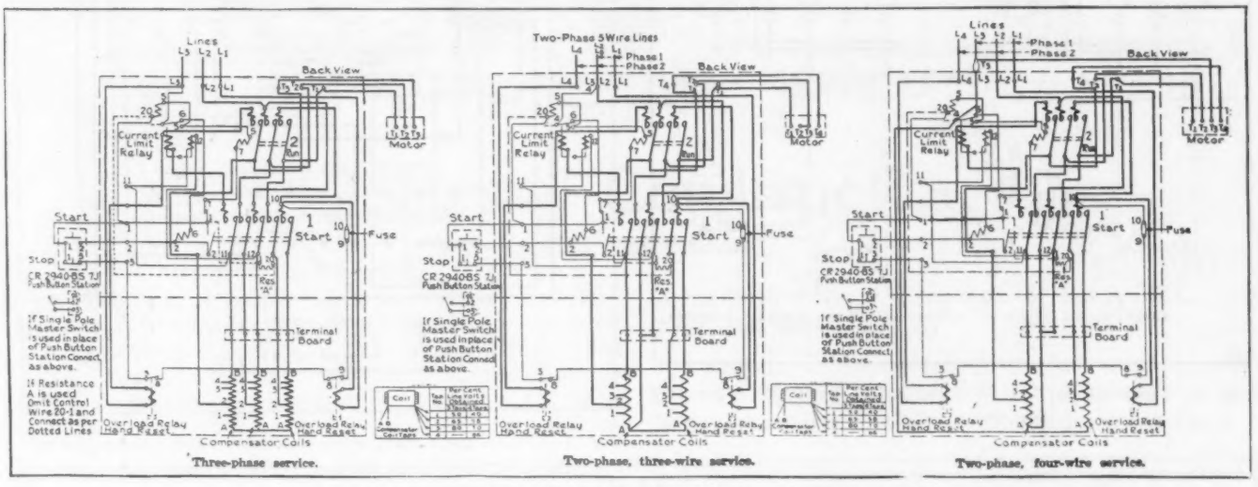


Fig. 5—Connections for General Electric CR7052-A1 automatic starting compensator.

Under-Voltage or Low-Voltage Protection Switching and Control Apparatus.—Under-voltage or low-voltage protection switching and control apparatus is apparatus which, on the reduction or failure of voltage, **operates to cause and maintain** the interruption of power to the main circuit.

The installation of a proper automatic starter for all motors in place of the manual type for starting small induction motors driving machine tools, pumps, compressors and other machinery with individual or small motor drive has become general. The squirrel cage motor for polyphase circuits and the

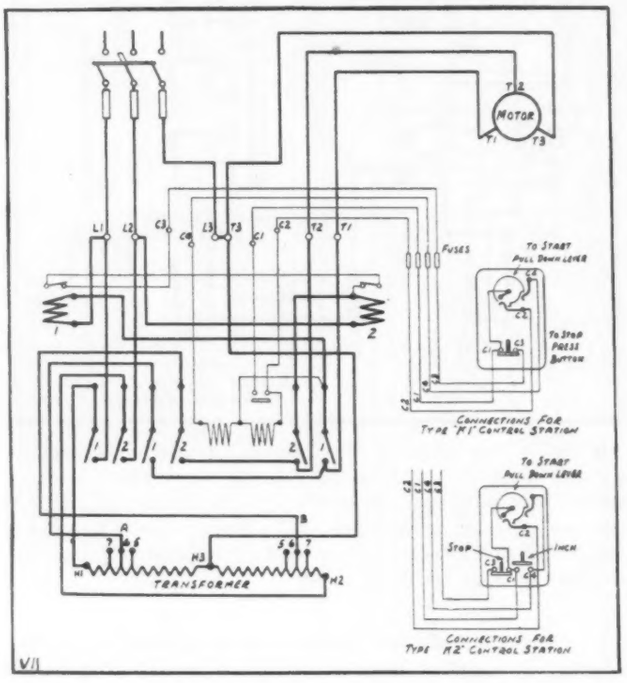


Fig. 7—Wiring diagram for Industrial Controller Company three-phase automatic compensator, with one Type K-1 or K-2 control station.

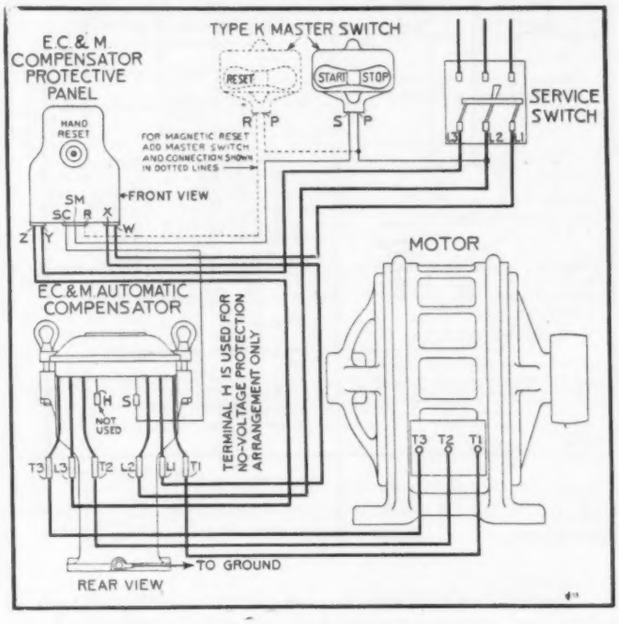


Fig. 8—Connection diagram for E.C.&M. a.c. automatic three-phase compensator arranged for overload and no-voltage release. (Use this diagram for two-phase, three-wire system with L2 as the common return.)

repulsion induction type motor for single phase circuits may be started by simply connecting them direct to the supply lines without any starting resistance or transformer. This method of starting requires 500 to 600 per cent of full load current and unless the ordinary hand starter is given a few seconds between "start" and "run" positions operators will of course blow the fuse on the "motor protection circuit" and cause a shutdown until the fuse is replaced. These delays cost money and can be nearly entirely eliminated by means of the automatic starter which has a sufficient time-element to give nearly 100 per cent perfect service and thereby save all delays due to blown fuses.

In addition to connecting the motor to the supply lines, the starting devices should give full protection to the motor circuit against continuous excessive current, failure of the voltage, and in the polyphase circuits against running with one line open; i.e., single phase.

Many starters do not provide a complete protection on this latter point as it is possible for one line to open and with the low-voltage protection coil across the other phase the switch will still be held closed and thereby burn out the motor.

An automatic switch can be installed anywhere that is convenient and all that is necessary is the push button attached to or suspended above the machine. A magnetically operated switch is positive in making and breaking the circuit and there is no danger of excessive arcing which occurs when the switch is closed or opened manually with a hesitating action.

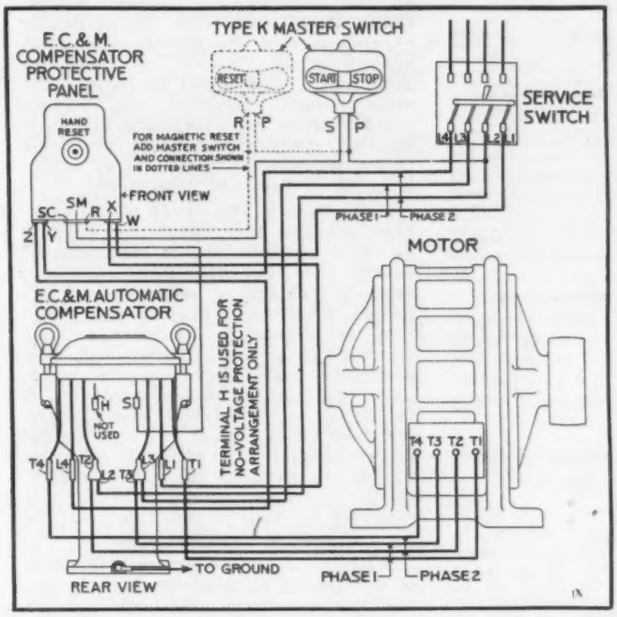


Fig. 9—Connection diagram for E.C.&M. a.c. two-phase compensator arranged for no-voltage release and overload. (Use three-phase diagram for two-phase, three-wire system.)

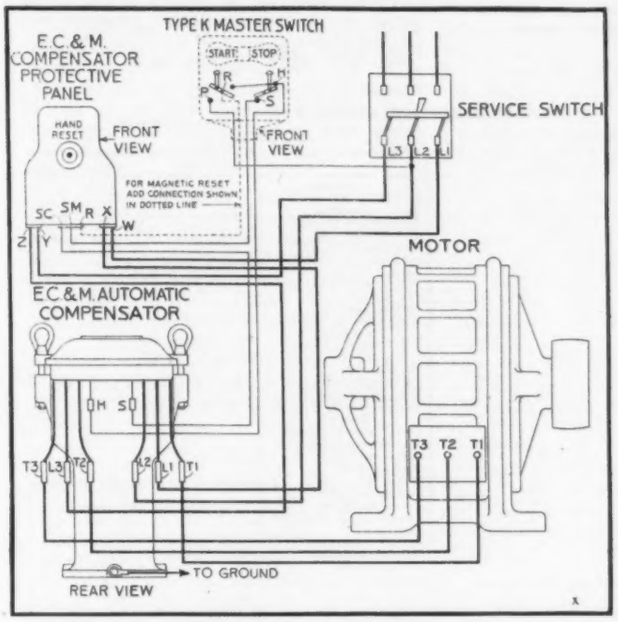


Fig. 10—Connection diagram for E.C.&M. a.c. three-phase compensator arranged for overload and no-voltage protection. (Use this diagram for two-phase, three-wire system with L2 as the common return.)

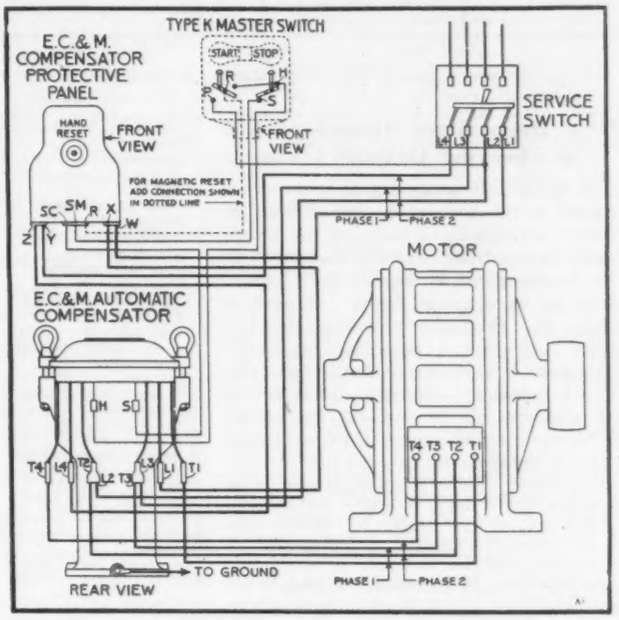


Fig. 11—Connection diagram for E.C.&M. a.c. two-phase compensator arranged for no-voltage protection. (Use three-phase diagram for two-phase, three-wire system.)

On motors of the squirrel cage type above 7½ hp., it is necessary to start with either an auto-transformer starter or by inserting resistance in the line. This latter type is particularly adapted for such service as fans, etc., which require that the power to drive them increase faster than their speed. The compensator type, however, has the advantage in the case of a motor which is loaded so that it will start when 50 per cent of full potential is applied; in this case the current taken from the line is 50 per cent of that in the motor when a compensator is used and 100 per cent when a resistance starter is used. A wound-rotor motor is started with full resistance in the secondary circuit, and the resistance is cut out in several steps.

STATISTICAL REPORT STATISTICAL REPORT NO.

NO. DEPARTMENT MONTH ENDING 192

ITEMS	CURRENT MONTH		SAME MONTH LAST YEAR		YEAR-TO-DATE THIS YEAR		YEAR-TO-DATE LAST YEAR	
	AMOUNT	PER CENT	AMOUNT	PER CENT	AMOUNT	PER CENT	AMOUNT	PER CENT
Gross Sales								
Less Returns								
Net Sales								
Less Cost of Sales								
Gross Profit								
Less Total Expenses								
Net Operating Profit								
Brokerage Profit								
Mdse. Rental Profit								
Discounts Earned								
Total Net Profit								
Beginning Inventory								
Purchases								
Cost of Sales								
Ending Inventory								
Average Inventory								
Desired Inventory								
Rate of Turnover								
Actual Rate per Annum								
Required Rate per Annum								
Consigned Mdse.								
Mdse. in Transit								
Outstanding Orders								
Brokerage Sales								
Held Orders at Retail								

Department managers are notified of their standing on the form reproduced above.

Department Store Methods an Aid in Checking Dealers' Costs

It is not only necessary to have somewhere in the accounting department of every merchandising business the necessary figures upon which an analysis of the business can be based—it is important to have those figures in such a shape that they most effectively tell the story and offer a desirable basis for judgment in deciding on future courses. The department store is past master in the analysis of its business. Such an institution is so large, with so many factors involved that, were not a close study made of every detail, it would be possible for a leak to exist somewhere which would do much to cancel the profits made in another department. A complete analysis is made of the business monthly in consequence and present conditions checked with those of the corresponding month of the past year and with the record of the present year to date.

In this connection two printed forms used by a successful western department store with a large electrical department are of interest as illustrating what factors are considered. The care and detail with which the problem is studied may suggest a similar analysis of his own problems to some electrical dealer who now judges the state of his business largely by his bank balance.

The first of these forms is an analysis of the overhead costs made each month by the general accounting department and forwarded to each department. It includes the following items:

Traveling
Spiffs (these are commissions allowed one department by another)
Meals
Parcel post, freight, express, etc.
Advertising (direct)
Supplies
Repairs to merchandise
Repairs to fixtures and equipment
Repairs to building
Stationery
Heat, light, water and power
Postage
Subscriptions and publications
Allow by purchase
Rent
Telegrams
Buyers' expense
Phones
Association dues
Merchandise exp.
Depreciation
Extra cartage
Pay roll credits
Pay roll
Exchange transfers
Contract furniture transfers
Bad accounts
Store taxes and insurance
Purchasing
Garage
Utility, phones and elevators
Photographic
Correspondence
Factory rent
Factory receiving room
Factory polishing room
Factory general
Delivery
Workroom or shop
Merchandise office and store records
Accounts payable
Accounts receivable
Credit, collection and service
Sales service and soliciting
Advertising (indirect)
Window display
Mail order
Contract sales service
Interior decorating service
Furniture decorating service
Furniture repair service
Administrative
Interest on investment
Inventory adjustment
Carrying charges
Miscellaneous.

These figures are given for the current month and for the year to date. Some of them, of course, are fixed sums prorated against each department and entered mechanically every month. Other items vary with the particular expenditures of the month or are not entered at all. Not all of them are appropriate to a small business. The main details, however, are factors which concern every merchant, and their monthly study would prove profitable to the specialty shop as well as to the large store electrical department.

In addition to this study of the overhead charges, the department head is provided monthly with a statement of exactly how this department stands in sales, percentage of returns, total expenses and profits. There is also a section here devoted to inventory, another which gives the rate of turnover in close proximity with another figure which gives the required rate of turnover. A statement of consigned merchandise, merchandise in transit and outstanding orders completes the picture. All these figures are given for the current month, for the corresponding month of the past year, for the year to date this year and for the year to date last year.

With this complete picture before him of the state of his business, it is obvious that the department chief can put his finger at once on any weak spots. No "leak" can go long undiscovered and, on the other hand, successful methods can be duly credited with their success and their application extended. It is obvious that the merchant so furnished with the knowledge of his business has a far better chance of success than the man who works in the dark.

ITEMIZED EXPENSE REPORT STATISTICAL REPORT NO.

DEPT. NO. DEPARTMENT MONTH ENDING 192

EXPENSE CLASSIFICATION	CURRENT MONTH	YEAR TO DATE	EXPENSE CLASSIFICATION	CURRENT MONTH	YEAR TO DATE
Traveling			Forward		
Spiffs			Pay Roll		
Meals			Exchange Transfers		
P-P. Frt., Express, etc.			Contract Furn. Transfers		
Advertising (Direct)			Bad Accounts		
Supplies			Store Taxes & Insurance		
Repairs to Mdse.			Purchasing		
Repairs to F & E			Garage		
Repairs to Building			Utility, Phones, & Elevators		
Stationery			Photographic		
H. L. P. & W.			Correspondence		
Postage			Factory Rent		
Subs. & Publ.			" Receiving Room		
Allow by Purchase			" Polishing Room		
Rent			" General		
Telegrams			Delivery		
Buyers Expense			Workroom or Shop		
Phones			Mdse. Office & Store Rec.		
Association Dues			Accounts Payable		
Mdse. Exp.			" Receivable		
Depreciation			Credit, Collection & Service		
Extra Cartage			Sales Service & Soliciting		
Pay Roll Credits			Advertising (Indirect)		
Miscellaneous			Window Display		
			Mail Order		
			Contract Sales Service		
			Interior Dec. Service		
			Furniture Repair Service		
			Administrative		
			Interest on Investment		
			Inventory Adjustment		
			Carrying Charges		
Forward			Total Expense		

All departmental cost items are recorded on forms of this character.

Questions and Answers on the New Electrical Code

As announced in the Jan. 15, 1924, issue, arrangements have been made with C. W. Mitchell, electrical engineer of the Board of Fire Underwriters of the Pacific, to answer through the columns of the Journal of Electricity such questions on the new National Electrical Code as are of general interest. Mr. Mitchell presents herewith the first of these questions and answers. All who are interested are invited to send in their inquiries either to Claude W. Mitchell, Board of Fire Underwriters of the Pacific, Merchants' Exchange Building, San Francisco, Calif., or to the Editor, Journal of Electricity, 883 Mission Street, San Francisco, Calif.

Q.—Is it permissible to place receptacles in a garage if they are installed 4 ft. above the pit floor?

A.—Section 3302-b of the National Electrical Code states that, "outlet and junction boxes shall be located at least 4 ft. above the floor" of garages. Section 3303-a provides that portable cords shall have an approved pin-plug connector and the connector shall be kept at least 4 ft. above the floor. In both cases the floor referred to is not the floor of the pit but the garage floor in which the pit is located. Therefore the rule does not permit the installation of receptacles in a garage pit at any height above the pit floor.

The desirability and reasonableness of this rule becomes apparent if the nature of the occupancy is taken into consideration. More or less gasoline vapor is always present in a garage and as this vapor is heavier than air it naturally flows to the lowest level. Consequently it accumulates in the pit first and if sufficient in quantity will overflow the pit and spread out over the floor of the garage. It is obvious, therefore, that as a protection against both accident and fire all devices such as lamp and plug receptacles, attachment plugs and connectors shall be installed well above the main floor level and not in a pit at all.

Q.—In an installation where other requirements of the code have been complied with to the extent that it is permissible to omit fuses in grounded wires of two-wire branch circuits, may one such unfused grounded wire serve as a "common" for two or more branch circuits?

A.—The answer is "No." Each branch circuit shall be considered individually, without reference to the others, if there are two or more such circuits. Each of the 2-wire branch circuits shall have its own "live" (fused and ungrounded) wire and its own unfused and grounded wire. These two wires shall have no connection with similar wires of other circuits except at center of distribution at which point they become branch circuits.

Sacramento Dealers, Inspectors and Power Companies Meet

In an effort to arrive at a common understanding and interpretation of the 1923 edition of the National Electrical Code, the contractor-dealers of Sacramento, representatives of the city electrical department, the Pacific Gas and Electric Company, and the Great Western Power Company, held a joint meeting at the Contractors' Association Hall on Thursday, Jan. 31. The meeting was attended by E. M. Hart, W. L. Hill and P. E. Loye of the Pacific Gas and Electric Company, F. H. Klipple and C. Schindler of the Great Western Power Company; C. W. Beaton and G. Cole of the city electrical department, as well as all of the members of the Electrical Contractors' and Dealers' Association of Sacramento. The discussion of the most important changes in the new Code was taken from the articles by Claude W. Mitchell which have appeared in the Journal of Electricity. Following this local problems were discussed.

Southern Alameda Electrical Men Form Development League

The electrical contractors and dealers of southern Alameda County, Calif., met recently and formed the Electrical Development League of Southern Alameda County. Jack Vieux, of Vieux Bros., Hayward, was elected president; L. E. Morgan, of San Leandro, vice-president, and Fred Mitchell, of the Pacific Gas and Electric Company, Hayward, was elected secretary.

Arthur E. Rowe, sales manager of Garnett Young & Company, San Francisco, was the speaker of the evening and gave an interesting address on co-operation. Mr. Rowe also spoke on organization and organization work.

Dinner Meeting Held by Marin County Electrical Men

The Electrical Merchants' Association of Marin County held its regular monthly dinner meeting at the Blue Rock Hotel, Larkspur, Calif., on Jan. 28. Twenty of the members were present and engaged in active discussion of betterments for retailing of electrical goods. It was decided that more attention should be paid to the matter of standardization of wiring and installation conditions and that greater effort should be put forth to increase the sale of electrical appliances and to bring about cooperation in advertising.

The meeting was addressed by George W. Barker, associate editor of the Journal of Electricity, who spoke on "Merchandising and Its Possibilities for the Contractor-Dealer." Oliver E. Sholders, sales engineer for the Pacific Gas and Electric Company, San Francisco, spoke on the "Relation of the Central Station to the Contractor-Dealer," and J. St. C. Ross, superintendent of new business for the Pacific Gas and Electric Company, San Rafael, Calif., gave a short talk on electrical development of Marin County.

The use of glassware in shading or diffusing light properly is the subject of a letter which will be sent shortly to all Denver, Colo., electrical men, architects and building interests. It is a two-page letter from M. Luckiesh, director of the Laboratory of Applied Science, National Lamp Works, Cleveland, Ohio.

M. P. Cannon of Latourette-Fical Company, Sacramento, Calif., and Mrs. Cannon were among the visitors to the annual dinner of the Electrical Contractors' and Dealers' Association of San Francisco held at Tait's-at-the-Beach on Jan. 26, 1924.

City Electricians of California Form New Organization

City electricians and their assistants to the number of about twenty met in Fresno, Calif., on Jan. 25-26, and organized the Pacific Association of Electrical Inspectors. H. W. Stitt, city electrician of Fresno, was elected president and Claude W. Mitchell, electrical engineer of the Board of Fire Underwriters of the Pacific, San Francisco, was elected secretary.

The various sections of the 1923 edition of the National Electrical Code were discussed in detail, especially those provisions relating to grounding and fusing. The meeting passed resolutions favoring general adherence to the Code rules.

Among those present were:

H. W. Stitt, city electrician, Fresno.
Ralph W. Wiley, chief, department of electricity, San Francisco.
R. H. Manahan, city electrician, Los Angeles.
Carl E. Hardy, superintendent, electrical department, Oakland.
B. C. Hill, supervising inspector, electrical department, Oakland.
R. W. Abright, city electrician, Long Beach.
R. B. Taplin, assistant engineer, department of public service, Long Beach.
A. E. Johnstone, city electrician, San Diego.
James M. Evans, city electrician, Modesto.
J. C. Hamilton, city electrician, San Jose.
James I. Dixon, city electrician, Santa Clara.
Frank A. Morrell, city electrician, Stockton.
G. E. Kimball, electrical engineer, Industrial Accident Commission, San Francisco.
Claude W. Mitchell, electrical engineer, Board of Fire Underwriters of the Pacific, San Francisco.

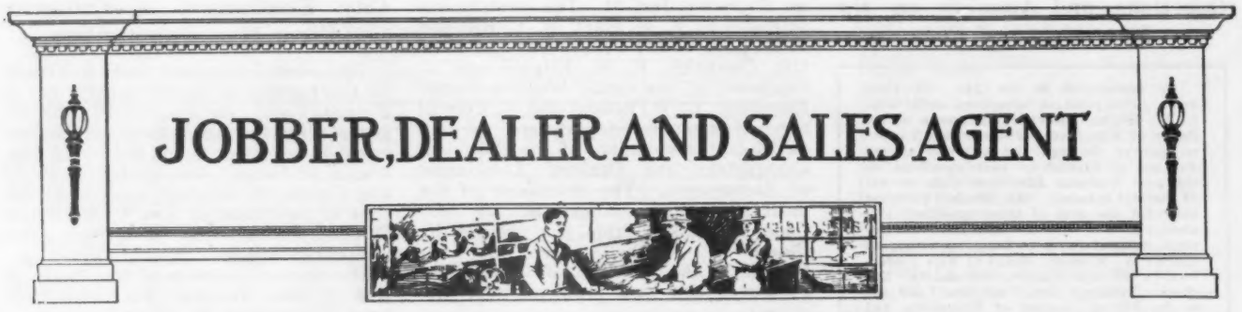
Fresno Dealer Adopts Standard for Range Installation

In order to secure uniform installation conditions on electric range and water heater sales and to have these installations of the highest standard for safety and convenience and yet at the minimum cost to the consumer, the Valley Electrical Supply Company, Fresno, Calif., has just prepared new wiring specifications covering this class of work. The specifications are embodied also in a blue print which has been drawn up and which is distributed to all workmen for their guidance.

The main service is of two No. 6 and one No. 8 wires in 1 in. Flexduct terminating in a metal meter box 16 in. x 28 in. x 9 in. This box is equipped with a padlock hoop so that it may be locked. The sub-feeds are of the same size wire and also run in Flexduct to the pull box on the back of the range. From this pull box two No. 6 wires are run in 1 in. Flexduct to the water heater. The main service switch is of 60-amp. capacity and the neutral is coppered. The Flexduct is grounded with a covered wire. The above specifications are for an installation of not more than 12 kw.

Western Hardware & Tool Company, Sacramento, Calif., has announced that it is now acting as distributor for Stephen's climbers. Ned Licht is general agent for the Pacific Coast.

Mica Insulator Company, Chicago, Ill., has recently published a four-page letter which is devoted to a description of Seamless Empire Bias tape. The letter describes the application and uses of the tape and also includes data on sizes, colors, prices and quantity discounts.



Santa Clara County Dealers Hold Unusual Display

A Cooperative Exhibit at Which No Sales Were Permitted Brought a Holiday Sales Volume Never Before Equaled

Electrical dealers everywhere are seeking new cooperative means of exploiting their business. These cooperative plans have embraced a wide scope and have proved very effective in the results accomplished. Every once in a while a new suggestion is advanced which, when tried out, proves its worth as a business getter and which justifies its continuance or repetition. The Electrical Development League of Santa Clara County has just tried out a new idea with results that are almost phenomenal in their character.

At the regular monthly dinner meeting of this league, held about two weeks before Christmas, Herbert A. Cram, representative in California, Arizona and Nevada for Landers, Frary & Clark, was the speaker of the evening, and offered several constructive suggestions for the betterment of merchandising and for increasing sales. One of these suggestions was that the dealers who were members of the league conduct a cooperative public display of electrical appliances in some building or hall convenient to the shopping center. The idea was expressed that the time was particularly opportune for such a display as only a few buying days remained before Christmas. This suggestion met with such ready approval that a committee was appointed at the meeting to confer with Mr. Cram for further ideas and to see that the plan was carried out.

This movement brought forth unexpected offers of assistance and cooperation from sources outside the electrical industry. Two different companies offered display quarters without cost to the league. Those finally selected were in the building of Harrison P. Smith, Inc., large automobile dealers of San Jose. This selection was made because of the favorable location in practically the heart of the shopping section and because of the unusual publicity which could be obtained on account of the ground floor location with exceptionally large show windows. E. J. Kingsley, San Jose manager for the Federal Electric Company, was made chairman of the committee on arrangements and was assisted by not only the other members of the committee but by the entire membership of the league as well. Each member of the league offered his services to the committee and contributed to the success of the affair, each one feeling that this was a real opportunity for true cooperation. Manufacturers of electrical appliances also offered their help and gave the services of their salesmen and demonstrators for the entire period of the display. Jobbers also contributed their support.

Attention was drawn to the display through the columns of the daily papers and several advertisements, varying from half page to quarter page, invited all who were interested in electrical appliances or who had Christmas presents to buy to attend the exhibit. These advertisements contained the statement that the display was free and that no sales effort would be permitted. Advertisements were run daily during the exhibit and, in addition, the affair was considered of news value by the papers and was so treated in their columns. The amount of news publicity thus obtained was of considerable volume and aided greatly in drawing attention of the public to the display.

The first principle established by the committee was that there should be absolutely no selling on the premises during the display although any appliance might be connected and working for demonstration purposes. This move was made as it was felt that if sales were to be made many people would stay away for fear of being importuned to buy and that thereby a large part of the publicity value of the display would be lost. Their foresight in this respect was well confirmed by the fact that the attendance, during the five days of the exhibition, was somewhat over 3,000 people, or an average of approximately 600 per day, each visitor feeling free to inquire about any device that appealed, knowing that such inquiry would not lead to an effort to make a sale.

As each visitor entered the show room he was given a card bearing the names of all San Jose members of the league and containing a statement that the devices on display were not for sale at the showroom but could be purchased from any one of the dealers whose names were on the card. This card served not only as an invitation to inspect all devices on display but also acted as a lasting advertisement for all members of the league.

Large tables, attractively decorated with crepe paper in the Christmas designs and colors, were used to hold the smaller appliances and lamp socket devices. This style of display permitted a pleasing arrangement of these devices and gave them a seasonal background. The heavier devices, such as ranges, water heaters, washing machines and vacuum cleaners were placed on the floor around the walls and many of these appliances were connected up for actual demonstration and use. Trained factory demonstrators cooked on the ranges and distributed samples of the prepared foods. Electric air heaters were displayed in a special section of the room in order to permit of adequate showing and explanation, and, insofar as possible, this plan of segregating the various kinds of appliances was followed out throughout the entire exhibit. All appliances were displayed without cards or other forms of advertising and no trade names were permitted to be displayed on the devices.

To add to the Christmas atmosphere and to stimulate the gift thought in connection with electrical appliances, a large Christmas tree was placed in the center of the room and this tree was illuminated with electric tree lights and was beautifully decorated. No appliances or other merchandise were permitted on the tree, the intention being to compel attention to the displays on the tables and floor. Special illumination, installed under the direction of M. H. Anderson, illumination engineer of the Pacific Gas and Electric Company, San Jose, added to the attractiveness of the display and helped to show off the appliances to better advantage. This illumination also made possible the selling of the idea of better lighting for homes, stores and offices and resulted in considerable interest in lighting fixtures and practice.

No effort was spared to make the entire display, while primarily for the exhibition of appliances, effective for the entire electrical industry and full information was given relative to adequate wiring, heating, illumination, cooking, water heating, etc. Owing to the fact that no sales were permitted at the exhibit the work done was of unusual effect for visitors asked questions freely. Many dealers are still making sales as a result of the display.

Eight dealers contributed to this display, which is said to be the first of its kind in the country. All of the dealers who participated were highly pleased with the results and expressed a desire to repeat the display for future holiday seasons. Some of the results obtained in sales volume were of unexpected proportions. One dealer, for example, reported a sales volume of electrical appliances alone of $600 per day during the display as compared with only $200 per day for the corresponding period of last year. Another dealer reported the sale to one prospect of over $1,000 in appliances and wiring as a direct result of the display. Others reported extremely satisfactory results and were well pleased at the outcome of the effort.

These photographs show the arrangement of appliances used in the holiday display of the Electrical Development League of Santa Clara County. The quarters were donated by a leading automobile dealer and all members of the League gave their services. No sales were permitted at the display but demonstrators were at hand to show the operation of equipment. The attendance at the exhibit averaged about 600 persons per day and totaled over 3,000 for the five days.

Displaying the Moderate Priced Electric Home

Electrical Cooperative League of Denver Sponsors Five-Room Bungalow Showing What Can Be Done Economically

That the electric home does not have to be an expensive home has long been realized by the electrical industry, but to the public—the actual builders of houses—the fact has not been so patent. Most of the electric homes that have been opened for inspection have been of the more elaborate type and this has, to some extent, been responsible for the feeling among the public.

To combat this idea, the Electrical Cooperative League of Denver, Colo., decided to sponsor and exhibit an electric home that should be of the type that would be within the reach of the home builder of moderate means. It was decided that a five-room bungalow should be used for telling the story and arrangements were made to present the moderate priced electric home to the public.

Contrary to the system employed in the case of the League's first home, opened a year and a half ago, the expense of the construction of the home was borne by a Denver building and investment company. The home was built for a private family and was not offered for sale at the time of the exhibition.

Furnishings and decorations were provided by a Denver concern as was the case also of the electrically operated musical equipment. Approximately 45 electrical appliances and lamps were provided by jobber and distributor members of the Denver league, as a result of an appliance drawing. These devices were placed about the five rooms of the home, some of them going in the finished basement where the laundry and den were situated.

The electric home was advertised as a modest bungalow in order to combat the theories of some that wealthy classes only could afford electrical conveniences and complete wiring.

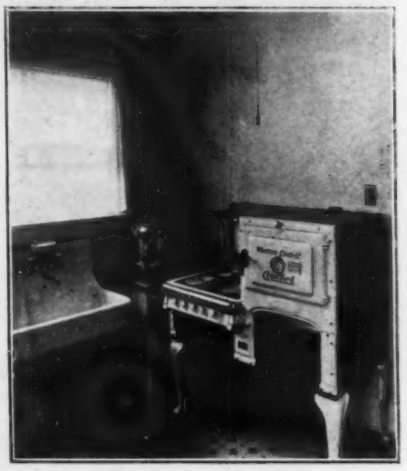
To advertise the opening of the medium priced home, double-page spreads appeared in the larger of the local newspapers in advance of the formal opening in addition to a special 12-page supplement in one of the smaller papers. In addition small advertisements were carried in the various newspapers during the exhibition. More than two and one-half times the advertising space used was obtained as free reading matter. This reading matter dealt specifically with the location of the home, the Electrical Cooperative League as the exhibitor and the features of the electric home. Advertising was supervised by the advertising and publicity committee with A. C. Cornell as chairman. The general arrangement of the home was in charge of a special committee headed by D. D. Sturgeon.

The exhibit was advertised as "a modest bungalow that people of average means can afford!" "modest costs, modern comforts!" "a bungalow full of convenience" and "an education to see just what ease and beauty adequate electric wiring and equipment can put into a modest home." Copies of "My Own Electric Home" obtained from The Society for Electrical Development, Inc., were distributed to all visitors at the home.

Volunteers from the industry served as attendants and lecturers. In every room they especially emphasized the modest cost of the wiring installations which consisted of 78 outlets, as follows: 21 convenience, duplex type; 25 switch outlets and 32 lighting (10 bracket and 22 ceiling). Included were six sets of 3-way switches.

During the ten days that the home was open for inspection 8,982 persons passed through it and were shown what electricity could do in the moderate priced home. Figures compiled after the closing of the home showed that it cost the league 12 cents per person to place the exhibit before the Denver public.

Considerable comment upon the electric labor-savers installed in the home was made by the visitors, all of whom displayed marked interest in the electrical features. According to O. L. Mackell, chairman of the Electrical Co-



The kitchen was of principal interest to the women visitors.

operative League, a large number of visitors at the electric home proved themselves familiar with the wiring features. Many said they had inspected the first home and expressed a preference for the second over the first.

An interesting comparison between the first and second home was afforded in connection with the peak-load attendance, according to S. W. Bishop, executive manager of the Denver league. In the first home, twice as many people passed through at night as in the afternoon. The condition was reversed, however, in the last home and the season of the year was explained as causing the difference. In the first case, visitors waited at night in the balmy spring weather to be admitted to the home. In the second home, however, the waiting was done in the afternoon instead of in the chilly evenings. Under those conditions, a larger percentage of women was checked in the total number of visitors.

Women manifested the greatest interest in the kitchen and laundry which were described by the attendants as being the most important rooms in the home, electrically speaking. Men, on the other hand, interested themselves largely in the den, living rooms and sleeping rooms.

The home was located at 1635 East Seventh Avenue, one of the principal residential thoroughfares, and was within easy reach of all parts of Denver. Two street car lines served to accommodate all visitors. From a spectacular standpoint, the exterior of the home was dressed in a blaze of light at night by means of flood lights. Supplementing these were strings of colored lights extending in both directions from the home on Seventh Avenue.

Except for the last day of the exhibition, which was marked by a snow flurry, ideal weather conditions prevailed throughout.

Interior of the living room of the second official electric home in Denver, Colo.

Preparing Meals Electrically for Salt Lake City

Fifty-Nine Electric Ovens Employed by Utah City Commercial Establishments in Supplying Cooked Foods

The development of the use of electric bake ovens in Salt Lake City, Utah, has progressed to such a remarkable extent that at the present time that city claims the distinction of having more of such ovens per capita than any other city in the world. It is exceeded in actual number by one other city (Chicago) where the population is thirty times that of Salt Lake City.

The first installation for commercial electric baking in Salt Lake City was made in 1914. This was an 80-loaf Hughes type oven, with a connected load of 16 kw., installed at Shay's Cafeteria. The oven is still in operation. The operation of this oven proved a complete success, and since that time electric baking has proved so satisfactory that many classes of business are included in the Utah Power & Light Company's electric baking customers. In fact, the electric bake oven is used in practically all places where extensive baking operations are carried on. Bakeries, restaurants, cafes, grocery and delicatessen stores, meat packing plants, schools, clubs and public institutions are listed among the users.

At the present time the Utah Power & Light Company has a total of 79 bake ovens connected to its lines, ranging from 30-loaf to 60-loaf -capacity. Fifty-nine of these ovens are in Salt Lake City. The largest oven will bake 24,000 1-lb. loaves in 24 hr. The Utah Power & Light Company, in addition to being one of the first central stations in the country to start campaigning on electric ranges, also pioneered the commercial cooking and baking idea, with the very satisfactory results stated.

The operating results of electric bake ovens, throughout the company's territory, have been highly satisfactory, and all users of the ovens are enthusiastic in their praises of this method, due to its efficiency, cleanliness and economy. More than a million kilowatt-hours are used annually for baking on the Utah Power & Light Company's system.

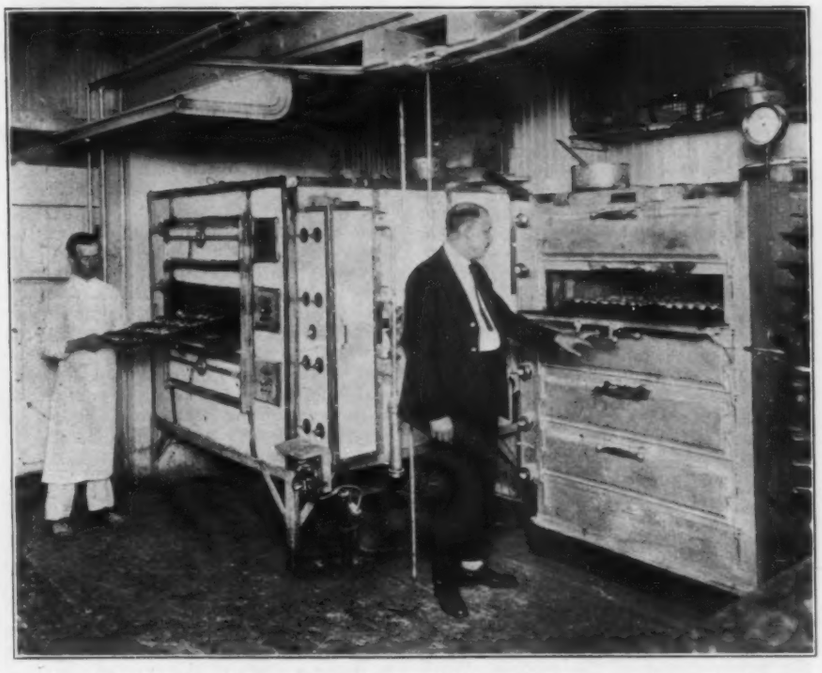
There is electrically baked daily in Salt Lake City by commercial establishments, the following:

6,468 loaves of bread
3,393 dozen rolls
1,307 cakes
3,019 pies
325 lb. roast meat.

This would feed 10,000 men daily on the following basis for each man:

¾ lb. of bread
4 rolls
1 piece cake
1½ pieces of pie
1 serving roast meat.

Users of electric ovens find it to their advantage to "play up" the fact that their products are electrically baked, suggesting as it does the appeal of scientific and up-to-date methods. Progressive bakers readily adapt their methods to the use of continuous baking, by scaling and moulding enough dough to load the oven, and while that is baking, working the balance into loaves. Invariably, greatly increased business has resulted to users from the installation of bake ovens.



The two electric ovens used by the Royal Bakery in the preparation of cakes and pastry make a connected load of 41 kw.

HANDBALL IN BUSINESS PLAYING TO WIN

By JOE OSIER

Following defeat in a handball court recently, a fast-stepping, fighting, hard-losing friend of mine offered this alibi:

"You didn't beat me. You can't beat me. I beat myself.

"I didn't serve the right kind of balls to you; I didn't pay attention to my returns; I didn't play the corners right; I was over-anxious and dubbed several shots that should have been dead easy outs.

"In fact, I gave the game to you. It was just a present. I beat myself."

After saying which, my friend strode under the shower, leaving me with the thought that—

Many electrical contractor-dealers and executive heads in the industry—going concerns—(the Lord only knows how)—are—

Maybe he socks himself on the head because it feels good when he stops.

Daily defeating themselves because they are not utilizing handball tactics in the conduct of their affairs.

They are not developing a serve that will win and are losing cash customers daily as a result. They are dubbing their shots; booting easy chances; using poor judgment and—

Consequently, their patrons are playing elsewhere and fattening the averages of competitors.

The nation over, heads of these concerns, responsible for heavy payrolls, are losing games when they should be winning. Their service is bad and they are leaving loopholes in their defense that another firm's organization can crawl through.

Many of them are facing the bankruptcy court and no few are paging the sheriff and his husky deputies because—

They are not on their toes, alert and ready for the sizzling sphere as it comes zipping back from the service wall.

These men, I contend, are over-trained or under-trained; they are too confident or lack confidence; they are short-sighted or too visionary and—

Sooner or later, their creditors will lug them out of the court and—

Try and collect cents on the dollar.

Some men, I find, make millions while others are making messes but, invariably—

The men who corral the clams—

Are the boys who have their heads up and their eyes open. They play to win and—

The tallies totaled tell the tale.

INDUSTRIAL NEWS

Cooperative Campaign Plans for 1924 Are Announced

A budget of $50,000 has been provided to carry on the 1924 program of the California Electrical Cooperative Campaign. Of this sum $20,000 is to be raised by the manufacturers, jobbers and contractors and $30,000 will be supplied by the power companies and dealers. Plans for the Campaign's activities during the present year have recently been announced by the advisory committee of the organization.

The plans for Campaign activities during 1924 call largely for the continuation of these efforts which have proved most effective in the past, in order that they may be carried on to a point of conclusion and that the greatest good may be realized from them. Some new ramifications may be adopted but these will simply be a means to the end and in the main the work will be:

A continuation of the adequate wiring program, including the calls upon architects, builders, realtors and owners; the preparation and distribution of wiring plans and specifications, and work with the architectural and electrical classes of the schools; also with the electrical contractor-retailers.

As in the past, electric homes will be opened for public inspection wherever there is an assurance of the wholehearted support of the local electrical interests and of an interested attendance; and wherever there is prospect of enough home building to give promise of the effort being capitalized upon in the near future. These homes will, in every case, make prominent display of electrical cooking, water heating and air heating.

The practice of addressing the women's clubs upon the subject of "Homes"—contrasting the inescapable drudgery in the homes of the past with the possibility of eliminating that drudgery in the modern home—will go on.

The interest created by the window lighting display warrants the continuation of its tour about the state, and the experience gained through its showing during 1923 will undoubtedly lead to even more effective meetings this year.

Likewise the committee has pledged itself to encourage, foster and take an active part toward making a success of the lighting schools and the lighting month which the lighting bureau of the Pacific Coast Electrical Association is undertaking for the good of the industry.

The committee has gone on record as pledging itself to promote the June Bride Week sales campaign and such other drives as may be considered timely and advisable.

So frequent have been the requests received by the California Electrical Cooperative Campaign from Chambers of Commerce, Californians, Inc., and similar organizations in California and elsewhere for information as to the number of persons engaged in the different branches of the electrical industry in that state that the Campaign has determined to undertake a census, the foundation of a permanent running record of the number of persons, men and women, engaged in the various branches of the electrical industry, divided so as to show those permanently employed and those transiently engaged in construction work.

Plans are now under way to devise a means whereby the Campaign can assist the efforts being made toward a greater recognition of the advantages which electricity has to offer in industrial transportation.

Seven persons are now employed by the Advisory Committee of the Campaign to carry on the work that will be involved in connection with these outlined activities. The personnel of the organization for 1924 is announced as follows: Victor W. Hartley, executive secretary; Gladys M. Bromley, stenographer and bookkeeper; Lois Hoadley, stenographer, Los Angeles office; Helen Grahame, representative, southern section; Frank J. Kiefer, field representative, northern section; George N. Rankin, field representative, valley section; and Frank N. Smith, field representative, southern section.

Fifty dollars in cash prizes are being offered by the Electrical Service League of British Columbia, Vancouver, B. C., for an emblem for use on stationery, advertising or signs. Any person who resides in British Columbia and who is not a member of the league council or an employee of the league may compete. Designs must be in the hands of the secretary-manager by April 5. The designs are to be judged according to their significance to the public as emblematic of the league's purpose, namely, to develop the electrical industry in British Columbia, and must show the name of the league legibly. Reduction to one-half inch in width must be possible.

The British Columbia Electric Railway Company, Vancouver, B. C., is building a $40,000 addition to its new Westminster Substation. It will house an additional 500-kw. rotary converter for the railway service, this rotary being removed from the Burnaby substation where a 1,000-kw. synchronous condenser is being installed to correct the power factor of the system. Work on the building is being done by a local firm.

Railroad Commission to Evaluate Power Properties

The Board of Supervisors of San Francisco, Calif., has applied to the California State Railroad Commission to fix the valuation of those portions of the electric generating, transmission and distribution properties of the Pacific Gas and Electric Company and the Great Western Power Company, both of San Francisco, that the municipality contemplates taking over and using for the distribution of power from its Hetch Hetchy project.

The finance committee of the board has adopted resolutions authorizing the sale on March 24, 1924, of $5,281,000 worth of Hetch Hetchy water bonds, 1910 issue, to provide the funds necessary for carrying on the project during the year. At the request of the supervisors, M. M. O'Shaughnessy, city engineer, prepared the following estimate of the financial needs for 1924:

Needed for mountain division: Early Intake	$ 285,000
Aqueduct tunnel, south fork crossing	863,000
Priest division: Moccasin power tunnels, control gates, concrete lining, surge shaft	450,000
Moccasin creek penstocks	550,000
Moccasin power plant, building, etc.	555,000
Transmission line, Moccasin Creek to San Francisco	1,545,000
Bay crossing pipe	820,000
Engineering and incidentals, 10 per cent	507,800
Total	$5,574,800

The board's action was taken following the receipt of the engineer's report.

The Dominion Government has commenced the erection of a wireless plant in connection with the Royal Canadian Air Force, at Jerico Beach, Vancouver, B. C. The towers will be of fabricated steel, 100 ft. high and 300 ft. apart, and will be erected by the Royal Canadian Engineers. The plant will be equipped with wireless and radio sending and receiving apparatus, and will be sufficiently powerful to communicate with the plant at High River, Alberta, 500 mi. to the east, whence messages can be relayed to eastern Canada. The airplanes and seaplanes at Jerico Beach will be equipped with radio receiving sets, which will enable the airmen to keep in touch with their base during flight.

The Port of Portland (Ore.) has now plans and specifications for the hull of the proposed dredge to be known as the Clackamas. Bids will be received on March 15. The hull is to be of steel, 236 ft. long; 50 ft. beam and 12 ft. 9 in. depth. The port engineer is to go East to make a study of the type of electrical machinery which will be used in the dredge.

P.C.E.A. Commercial Section Meets at Del Monte

Reports by Various Sub-Committees Indicate Progress During Year Papers Considered for Annual Meeting

The commercial section of the Pacific Coast Electrical Association held its quarterly meeting at the Hotel Del Monte, Jan. 25-26. A. E. Holloway, chairman of the section, presided over the executive committee meeting and the various sub-chairmen were present to participate in the discussions and reports of their separate committees. Since the previous meeting, held at Fresno on Oct. 19-20, 1923, the members of the special committees have been active in their respective fields and the reports presented at Del Monte indicated considerable progress.

The committee on appliance sales, under H. C. Goldrick, of the Western Electric Company, Los Angeles, Calif., passed resolutions that one of the national electrical cooperative organizations should proceed with the preparation of material to sell the electrical appliance idea to the industry itself, particularly to those employees who come into contact with the public. This step was taken as it appeared from discussion that many sales of electric ranges, water heaters, etc., are killed by the unthinking expressions of those employees who are not familiar with operating costs.

The resolution which will be presented to the national organization for their consideration was drawn up by a committee on resolutions and is as follows:

Whereas, It has developed in discussion that education on electric sales and application is still very much needed among the ranks of the industry, especially among those who meet the public in any capacity whatsoever, namely: salesmen, wiremen, metermen, troublemen, servicemen, deliverymen, minor executives, etc., and

Whereas, There is a manifest lack of consideration on the part of these people as to the service which these devices will render, together with a lack of knowledge of the device itself and its application, be it therefore

Resolved, That a means should be provided by one of the national cooperative organizations—either the N.E.L.A. or the S.E.D.—which means should be presented to all members of the industry to the effect that the comfort and usefulness which electrical appliances render in daily life and the savings thereby effected, and be it further

Resolved, That this means be made available through all the various electrical organizations to all members of the electrical industry, these organizations being the A.F. of L., I.B.E.W., and all other organized bodies interested in the electrical development of the United States.

The committee expressed its confidence in the contractor-dealer and his efforts in the following manner: "This committee desires to be placed on record as appreciating highly the work done by the contractor-dealer in promoting and developing the electrical industry and further desires to here express its confidence in the contractor-dealer and to pledge its support to his legitimate efforts."

In the street lighting committee an excellent paper was presented by H. H. Allison, illuminating sales engineer of the Pacific Gas and Electric Company, San Francisco, Calif. This paper contained a clear analysis of the street lighting situation, of its importance and of its development possibilities.

The executive committee voted to hold its next meeting in San Francisco, Calif., on March 21, 1924. Reports from the various sub-committee chairmen indicated that considerable progress had been made and that papers of unusual merit would be presented at the annual meeting. An appropriation of $500 was approved for the purpose of purchasing equipment and carrying on a lighting school under the direction of the lighting bureau. It is planned to secure fifty men in each of three districts—northern, central and southern California—to take a course of instruction in lighting fundamentals. It is expected that this course will be started not later than August of this year and that the portable lighting exhibit which will be used for the course will be productive of results in improved lighting, which will more than justify the effort and expense. The executive committee also voted the appropriation of $50 for the purpose of reprinting data in connection with Diesel engine operation. These reprints will be furnished to central station men who are interested and to others who are concerned in the relation of Diesel engines to electric generation.

The lighting bureau committee passed a resolution of protest against the provision in the new National Electrical Code which permits 15 amperes per circuit in place of the old "660-watt rule." The committee also favored the raising of funds to promote higher lighting intensities in the home and to further the idea of color lighting for homes.

Samuel H. Taylor, secretary of the Pacific Coast Electrical Association, outlined the financial plans of the association and gave some interesting facts and figures relative to the progress of association work.

F. J. Airey, chairman of the lighting bureau committee, announced the appointment of the following new members of the sign lighting committee:

C. O. Martin, Benjamin Electric & Manufacturing Company, San Francisco.

H. L. Johnson, Southern California Edison Company, Los Angeles.

C. B. Merrick, San Joaquin Light & Power Corporation, Fresno.

A. E. Sargison, Edison Lamp Works, San Francisco.

Clark Baker, National Lamp Division of General Electric Company, Oakland.

A. E. Holloway, chairman of the commercial committee, announced the appointment of H. C. Goldrick of the Western Electric Company, Los Angeles, W. C. Heston, Pacific Coast editor, Electrical World, San Francisco, and George W. Barker, associate editor, Journal of Electricity, San Francisco, as a committee on publicity.

Members of the various sub-committees of the commercial section of the Pacific Coast Electrical Association in convention at the Hotel Del Monte, Del Monte, Calif., Jan. 25-26.

Pasco to Pendleton Power Line Is Nearing Completion

The Pacific Power & Light Company is spending $300,000 to bring a new 66,000-volt power line from Pasco, Wash., to Pendleton, Ore., and in making improvements coincident with the new line. With the completion of the work, which Dr. F. W. Vincent, local manager, states will be finished about March 1, the present 25,000-volt line from Walla Walla River will no longer be used except in case of an emergency.

The new substation is being built adjacent to the power plant at Thompson and Railroad Streets and the transformer to step the voltage of the Pasco line from 66,000 to 2,300 v. will be installed there. The substation will be strictly modern and the apparatus will be out of doors. The present station used for the Walla Walla River line will be kept in first-class repair and the transformers and switches used for the line will be placed in the new station. In bringing the line from Pasco it was found necessary to build two towers 150 ft. in height, where the line crosses the Columbia River. In spanning the river the wires are each 1,800 ft. long.

A permit has been granted by the Federal Power Commission to the Southern Idaho Land & Power Company for a power project on Crane Creek, Washington County, Idaho, where a dam and power house will be constructed to develop 25,000 hp.

Better Lighting Being Sponsored by Vancouver League

Promotion of better lighting in every sphere is about to be made one of the major activities of the Electrical Service League of British Columbia. Particular emphasis is to be laid at first on the necessity of better lighting in school rooms.

A recent survey of class rooms in Vancouver by members of the league showed some small children staring into naked lights of 100 to 150 watts, thus imperilling their eyesight. The gravity of the situation was immediately drawn to the school authorities, including the chairman of the board of trustees, the municipal school inspector and the school building engineer, and all agreed that the lighting must be improved.

Owing to a certain situation in Vancouver whereby new capital expenditures were voted down by the property owners until a new basis of taxation could be evolved, there is no money available for improvements. A better situation obtains in the municipality of Point Grey, a suburb of Vancouver with 110 class rooms in its schools. The officials of the school board there also are sympathetic but the league is about to work through the various parent-teachers' associations, the ward improvement associations, and other bodies so as to work up public sentiment in favor of better lighting in class rooms. When this is done, the time will be ripe, it is expected, for approaching the school board to make the necessary expenditure.

The league is fostering improved street lighting in Vancouver, by proposing to banks and such institutions whose buildings are often dark at night, the use of more light outside their premises. James Hart, secretary-manager of the league, assisted by the large company members, is approaching the principal banks to this end and they are being supported by the civic publicity bureau. It is considered that better lighting of streets is of vital importance in attracting tourists.

At the same time as this movement, C. H. Fletcher, city electrician of Vancouver, is preparing plans for replacing the cluster lights with single units of higher efficiency and candlepower. Merchants on the principal streets are taking an active part in the plans for better illumination.

Mr. Hart, of the Electrical Service League, assisted by W. J. Tulk, illumination engineer for the British Columbia Electric Railway Company, is making calls upon industrial firms in the interests of better factory lighting and many new installations are being made.

Tacoma Municipal Net Operating Income Less Than 1922

The total net operating income of the Tacoma, Wash., Municipal Light Department for 1923 fell below that of 1922. The department's gross business during 1923 was heavier than ever before in its history, the annual report shows. Despite no especial effort to increase the load, and that the winter's mild temperature cut down heating demand, the gain was 6.4 per cent.

The net operating income for 1923 was $740,835.04 as against $810,361.94 for 1922. The gross income was $1,375,737.75 for 1923 as against $1,292,423.53 for 1922. Operating expenses for 1923 were $571,632.68, including depreciation charges, leaving $804,105.07 as operating income. To this sum, $45,732.23 of miscellaneous revenues was added and interest and gross earnings tax deductions of $109,002.26 were made, leaving the net operating income given.

Group Insurance Provided for Power Company Employees

The Umpqua division of The California Oregon Power Company has received for each member a life insurance policy issued by an eastern insurance company. This form of insurance is presented to the permanent, full time employees of the company under a group policy which covers the lives of all the permanent employees of the organization who have been with the company for six months or more. It is furnished at no expense to the employees and does not in any way displace any payments provided for by the workman's compensation act.

As the properties of the Douglas County Light & Water Company were taken over by The California Oregon Power Company in July, 1923, the employees of the old Douglas County company have therefore been in the employ of the new company for a period of six months and automatically come under the company's group life insurance policy.

An attractive 38-page consumer booklet has recently been published by the merchandise department of the General Electric Company. The booklet, known as Y-1834, is entitled "The Home of a Hundred Comforts." By means of editorial matter and illustrations the prospective home owner, on reading the booklet, is taken from the front door through the entire house to the basement and en route is acquainted with all of the comfort-making and labor-saving functions that electricity performs in the modern home. In addition to this material there are isometric drawings of a house and three alternative wiring diagrams for proper electrification of the structure. Several pages of the booklet are devoted to a description of the convenience of modern wiring devices and appliances.

The Willapa Electric Company, operating the street car line between South Bend and Raymond, Wash., and supplying power and light exclusively to Raymond, and in competition with the Willapa Power Company in South Bend, has petitioned the Pacific County Commissioners to use the Smith Creek-Brooklyn road as right-of-way for a proposed transmission line, and to grant a 50-year franchise. The company, in its petition, states that it is now generating power from a steam plant in Raymond, but wishes to bring power over the proposed line from a new plant of the Grays Harbor Railway & Light Company.

Gray's Harbor Railway & Light Company has applied to Grays Harbor County Commissioners for permission to run a light transmission and distribution line south from Vesta to the county line—the line to follow the route of the North River road.

Central Station Employees Told of Company Activities

In October, 1923, The Washington Water Power Company, Spokane, Wash., established its new department of public relations, under W. H. Ude as director. Among the principal duties of the department are the fostering of close relations with the public in matters that affect both their own welfare and that of the company, and the sale of company securities among their customers. Realizing the cooperation that could be given in these important matters by the whole organization of the company, which numbers nearly six hundred employees, Mr. Ude planned a series of discussions on various phases of the company's business. This began about Oct. 15 and lasted until the end of the year. These discussions took the form of 30 or 45-minute talks given by various employees, with several minutes at the close devoted to questions and answers. The employees were divided into five sections, and each talk was given every day except Saturday for a week, from four to five o'clock. Thus all the employees were able to attend the course, on company time. Below are given the names of the speakers and outlines of the subjects:

D. L. Huntington, president. General introduction and explanation of the purpose of the series of discussions. The conditions which have necessitated corporations, and the principles underlying their formation, organization and financing, with particular reference to The Washington Water Power Company.

Miles W. Birkett, vice-president and general manager. The water power resources of Washington, and a review of the history of the physical growth of the company since its formation thirty-four years ago, illustrated with statistics on capacity, output, revenue, population and number of customers served.

V. G. Shinkle, secretary-treasurer. General explanation of financial matters, company securities, and the relation of power costs to total production costs.

V. H. Greisser, chief engineer. Explanation of relation between cost of furnishing service and rates, with reference to necessary difference in rates for large and small consumers, based on transmission, distribution, and service facilities, power losses between head water and consumer, effect of price advances on various elements of plant investment.

Lewis A. Lewis, sales manager. Explanation of the theory of rate making, justifying demand charge and minimum bill, the effect of increased use of energy and acquisition of large power loads upon rates for smaller consumers, comparison of company rates with those in other industrial centers.

W. H. Ude, director of public relations. Regulation of utilities by state commissions and the establishing of the rate base, the protection of the public interests, and of the utility's investors, through the agency of the commission.

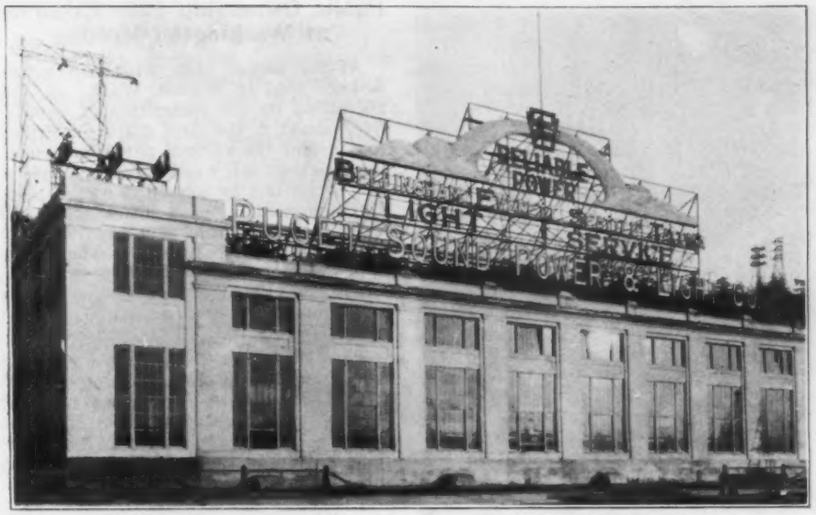
Thomas Aston, claim agent. Taxation, the effect upon gross revenue, the menace of socialization of all property, the need of an adequate return to citizens for taxes paid, explanation of the various taxes paid by the company.

L. E. Morse, assistant treasurer. The need for customer-ownership of utilities, and the growth during recent years, what cooperation of company employees means in this important work, the security underlying company stocks and bonds.

J. B. Fisken, consulting engineer. Some early and unwritten history of electrical development in Spokane, beginning about 1885, and covering the growth of lighting, the introduction and development of motor loads.

J. S. Simpson, auditor. The annual report for 1922 for The Washington Water Power Company. This was explained item by item, with full details as to the need for the system of accounting.

W. T. Ryan, industrial engineer. The part played by The Washington Water Power Company in the industrial development of Spokane and the neighboring territory, the coming importance of Spokane as an industrial center, explanation of contributing factors, the record of the company, and a comparison of the central station with other corporations.



White River Power House of the Puget Sound Power & Light Company where additional generating equipment is being installed.

Development Program Is Announced by Utility

Installation of New Plant and Enlargement of Present Facilities Planned by Puget Sound Company

The Puget Sound Power & Light Company has announced that it will immediately begin the construction of a 45,000-hp. hydroelectric plant on the Baker River in Skagit County, Wash. This plant, which will represent an investment of $6,000,000, will be erected at Eden Canyon. This is but a short distance from the confluence of the Baker and Skagit Rivers, just outside the town of Concrete. Here a narrow natural chasm of solid rock provides a good location for the installation of a concrete dam that is to be 235 ft. in depth from the solid rock at the bottom of the canyon to the upper edge. Foundations and approximately a depth of 50 ft. of the dam are scheduled for completion this year, and the entire work is expected to be completed in 1925. A view of the dam site appears on page 120 of this issue of the Journal of Electricity.

The company expects to be generating 30,000 hp. of electrical energy at the Baker River plant by the end of 1924 and later to install an additional turbine to bring the full capacity up to 45,000 hp. The company's White River plant, located between Seattle and Tacoma, has a capacity of 61,662 hp., and another unit is soon to be added at an approximate cost of $1,000,000. Snoqualmie Falls and Electron produce approximately 27,000 hp. each. The new installations, together with its other hydroelectric and steam plants, will provide the Puget Sound Power & Light Company with approximately 225,000 hp. of electrical energy.

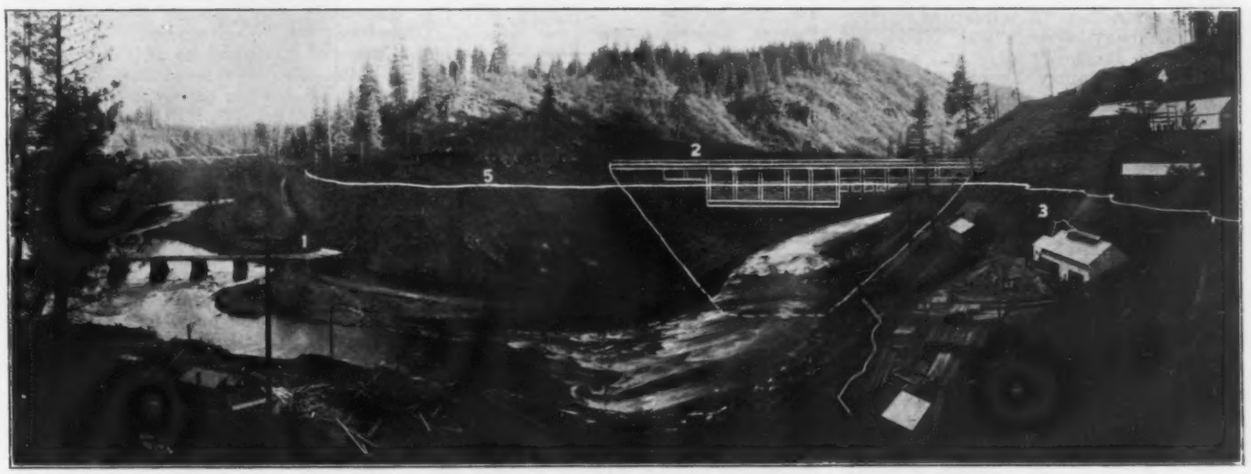
Increase Substation Equipment in San Francisco

Owing to the increased demands for electrical energy in that section of San Francisco, Calif., in and about 3rd and Market Streets, the Pacific Gas and Electric Company has found it necessary to expend approximately $196,400 for additional equipment in its substation located on Jessie Street between 3rd and 4th.

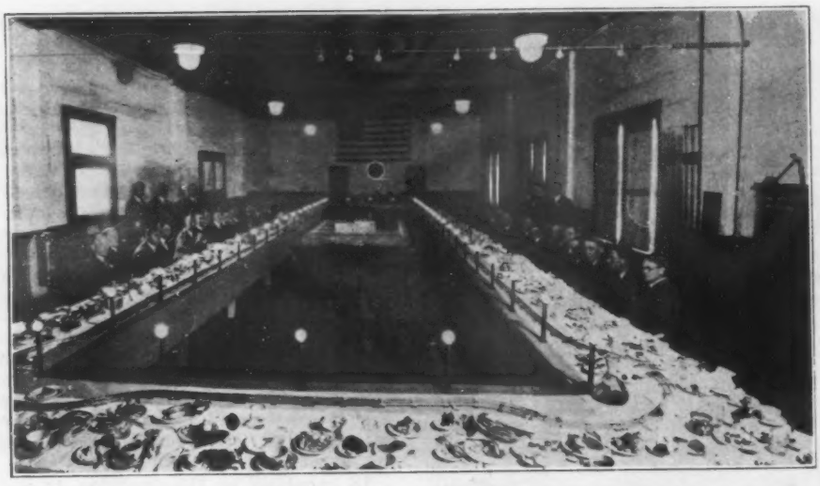
This new equipment will consist of three direct current generators, each having a capacity of 2,500 hp. They will be of the most modern type of construction and especially equipped to automatically take care of any interruption in service that might occur. They are so constructed that they will take care of 100 per cent increase in demands for a period of ten minutes.

In speaking of this addition to the local plant, H. Bostwick, division manager of the company, states that figures just compiled for the year 1923 show that the gain in consumers over the company's system has been the largest in the history of the company, even exceeding those years in which large blocks of consumers were acquired through the purchase of other companies. The gain in consumers for the last twelve months was 58,265. Of this amount 29,981 were electric, 27,422 gas, 825 water, and 37 steam.

A 4,500-kw. transformer is to be added to the plant equipment of the Oregon Pulp & Paper Company at Salem, Ore. The new unit will take the place of the 1,500-kw. transformer now in use by the company. The transformer and the building to house it will cost approximately $20,000. Automatic oil switches and other up-to-date equipment will be included. The building of the larger substation will make it necessary for the Portland Railway, Light & Power Company to extend its 57,000-volt line from the substation on Liberty and Mill Streets to the paper mill's substation.



View of dam site on the Pit River, five miles above Pit No. 3 Power House of the Pacific Gas and Electric Company. (1) Beginning of a temporary diversion dam which will divert the water of the Pit River from its main course through a temporary flume along the mountain side to permit anchorage of footings for the dam in the bed of the river. (2) Site of 110-ft. dam, top of which will be used as a part of the new county road from Cayton Valley to Burney Falls. This dam will back up the water for a distance of ten miles. (3) Inlet of concrete lined tunnel, 19 ft. in diameter and approximately 21,000 ft. long, through which the impounded water will flow to the Pit No. 3 Power House. At the end of the tunnel the water will drop 155 ft. into the power house, where generator equipment for 100,000 hp. in electrical energy will be installed. (4) Road bed of the Pacific Gas and Electric Company's railroad, running from Bartle to the Pit No. 3 Power House, a distance of 33 miles, built to carry in food and supplies to the crew of 1,000 men now working on this project. (5) Water level when dam is completed.



One hundred and sixty-five members of the El Paso Rotary Club were the guests of the El Paso Electric Railway Company at two luncheons held in the company's club rooms recently. An inspection of the plant was made after each luncheon.

El Paso Rotarians See What Is Behind the Button

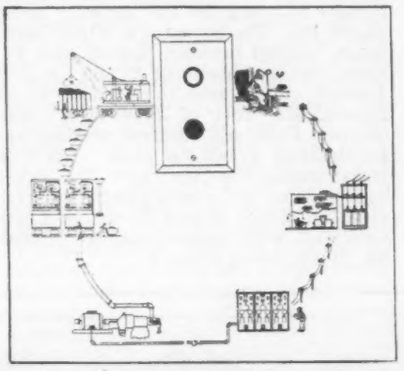
Members of Club Guests of Company at Luncheon and Are Taken on Inspection Tour of Central Station Plant

Members of the Rotary Club of El Paso, Texas, were the guests of the light and power department of the El Paso Electric Railway Company at two luncheons conducted in that city recently. The purpose of the luncheons was to acquaint the business men of El Paso with the company's distributing and generating equipment. One hundred and sixty-five members of the club were entertained at the two luncheons and were later given an opportunity to visit the company's plant.

The luncheons were held in the utility company's club room, the guests being seated at a rectangular table. In the center of the space formed by the table a model of the company's generating plant was erected. This reproduction was complete even down to the coal piles that adjoined the plant. The plant was lighted and a buzzer was placed inside of the miniature building to simulate the noise made when the equipment was in operation. A miniature electric street railway system was placed on top of the luncheon table and a train, named the "Rotary Special," traveled over the tracks, stopping in front of each guest and permitting him to take from it cigars and cigarettes with which the train was loaded. Behind the "railroad right-of-way" were miniature street lamps. Current was supplied to the gold colored globes during the luncheons.

J. F. McLaughlin, superintendent of the light and power department of the El Paso Electric Railway Company, acted as toastmaster at both luncheons and a short talk welcoming the guests to the plant of the company was presented by Alba H. Warren, manager of the company. The mayor of El Paso and several aldermen were also in attendance at the luncheons.

As a guide to the visitors, a small booklet was presented to each Rotarian. This booklet explained the functions of each department and of the various pieces of equipment that they saw on making the inspection tour of the plant. Each piece of machinery and every department was given a number that was placed in plain sight, the corresponding number appearing in the booklet, where a short description was presented. Members of the light and power department also acted as guides. The material in the souvenir booklet was written in the language of the layman and this together with the remarks that were made by the guests enabled the visitors to gain a comprehensive idea of the work done by the central station in supplying electric current to the city of El Paso.



The booklet that was presented to each guest was titled, "Rotary Sees What Is Behind the Button."

A conference was held at Victoria, B. C., recently, between representatives of the British Columbia Electric Railway Company and subsidiary power companies, representatives of logging companies that use Alouette Lake for logging purposes, and E. Walmsley, crown timber agent, at which an agreement was reached whereby the power companies will be allowed to raise the level of the lake 40 ft. if they provide a spillway and log-chute at that level. The power companies purpose to utilize the water of Pitt River three times on its way from its source, at Alouette Lake, to the Fraser River.

Public Ownership Bills Endorsed at Washington Meeting

At the second state-wide power conference held in Seattle, Wash., on Jan. 26, called by the committee of twenty-five named at the first state conference to consider the various power measures, the Erickson bill was formally endorsed. The Bone bill as amended was ratified and endorsed, after a bitter but futile fight to strike from it a provision authorizing municipalities to issue utility bonds without a vote of the people, where such bonds would not be a general indebtedness against the city or town.

The conference was attended by about thirty out of the two hundred persons invited, and was presided over by A. Emerson Cross. Delegates from the Seattle Municipal League, who were opposed to endorsement of the Erickson bill, walked out of the conference.

The Bone bill authorizes municipalities to sell surplus power outside of corporate limits, while the Erickson bill allows the organization of new power districts to develop and sell hydroelectric energy. Both the Bone and Erickson bills will now be prepared for filing and sent to Olympia, and the initiative petitions will be circulated together. The two bills will be campaigned for as one measure during the fight which will be waged against the Reed bill, which provides for a 5 per cent tax upon all power sold by cities when they sell outside of their corporate limits.

The Washington Superpower League, which is backing the Erickson measure, opened the Seattle campaign for signatures upon the proposed initiative measures, when Ralph D. Nichols, executive secretary of the league, in an address to the Seattle Labor Council, urged that organized labor endorse the measures and join in the support of the same both during the campaign for signatures, and then in the general election.

Norwood W. Brockett, director of public relations for the Puget Sound Power & Light Company, and spokesman for the Northwest Electric Light and Power Association, which is leading the fight of the private power companies, in a talk on the power question before the King County Democratic Club, criticized clauses in the Erickson bill that he interpreted as intended to confer on "public utility districts" created under the bill, if it becomes a law, large and virtually unrestricted authority to levy taxes and to issue general obligation as well as utility bonds. Mr. Brockett charged that advocates of the Erickson bill failed to enlighten the voters concerning taxing and bonding provisions of the measure that are of vital interest to all taxpayers and property owners, and declared that incorporation of these provisions in the bill indicated its supporters anticipated publicly owned power plants maintained and operated under the superpower league plan might have to resort to levy taxes and borrow money on the general credit of the taxpayers to meet deficits.

Mr. Brockett denied emphatically that the Seattle municipal lighting plant is responsible for the low light and power rates in Seattle, and stated that his company could supply every new demand for power in that district.

New Officers Named for Utility Information Committee

The Rocky Mountain Committee on Public Utility Information, which covers the states of Colorado, New Mexico and Wyoming, at its annual election recently held in its headquarters in Denver, Colo., re-elected William C. Sterne, chairman. R. M. Morris, general commercial manager for the Mountain

WILLIAM C. STERNE

States Telephone & Telegraph Company, was elected vice-chairman. V. L. Board, general superintendent of the Public Service Company of Colorado, was re-elected secretary-treasurer.

Mr. Sterne who, for many years, has been interested in the human side of the public utility industry, was one of the originators of the Rocky Mountain committee, which has been in existence since the winter of 1921-22. Mr. Sterne heads the Municipal Properties Investment Company, which operates in a half-dozen Colorado towns, the Summit

V. L. BOARD

County Power Company and the McCook (Neb.) Electric Company. He was graduated from Harvard and later entered the field of journalism. He became identified with the public utility industry in 1903, when he formed the Arapahoe Electric Light & Power Company. For a time he operated at Laramie, Wyo., but eventually confined his activities to Colorado and Nebraska. Mr. Sterne has been responsible for the inauguration of many of the most successful activities of the Rocky Mountain committee.

Mr. Board, since he was graduated from the University of Missouri in 1910, has engaged in the utility business. His first experience was in the telephone field as a lineman and "trouble shooter" and later, as a member of the Western Electric staff, he was a line construction foreman. In 1912 he became identified with the Henry L. Doherty & Company interests and held various engineering positions in New York and Denver. In 1922, he became general superintendent of the Denver Gas & Electric Light Company. In October, 1923, upon the formation of the Public Service Company of Colorado, he became general superintendent of the consolidated properties.

Mr. Board was one of the organizers of the Rocky Mountain Committee on Public Utility Information. He is responsible for many of the good will building activities of the committee and in the company he represents.

Mazda B and C Lamp Prices Are Reduced 7½ Per Cent

Prices of Mazda B and C lamps, manufactured by the Edison Lamp Works of the General Electric Company and the Westinghouse Lamp Company, were reduced approximately 7½ per cent on Feb. 1. This is the fourth reduction in lamp prices that has been announced within the last two years. The first reduction was in April, 1922, and amounted to 9 per cent, the others were one in October, 1922, averaging 8 per cent, and a third in May, 1923, of 10 per cent.

This action is further evidence of the fact that improved methods of manufacturing can lower prices to the consumer, notwithstanding an increase in the cost of labor. The development of improved lamp-making machinery has offset the great increase in cost of labor and materials until now the prices of lamps average 30 per cent below the pre-war level.

The table following shows new Mazda lamp prices.

	Watts	
Mazda B	10-50	$0.30
Mazda C	50	.40
	75	.50
	100	.60
	150	.75
	200	1.00
	300	1.60
	500	2.35
	1000	4.00

At the annual election of the Los Angeles, Calif., Electric Club the following were chosen to hold office during 1924: A. S. Moody, General Electric Company, president; F. E. Seaver, Los Angeles Gas & Electric Corporation, first vice-president; Ben G. Wright, Southern California Telephone Company, second vice-president; L. E. Moselle, Bureau of Power and Light, third vice-president; S. W. Murray, Illinois Electric Company, secretary-treasurer; L. R. Ardouin, United States Steel Products Company, sergeant-at-arms; D. C. Casselman, Builders' Exchange; F. E. Geibel, Pacific Electric Railway; Ross Hartley, The Electric Corporation; Arthur Kelley, Southern California Edison Company; C. T. Smallcomb, electrical contractor, and B. B. Vandercook, Western Electric Company, Executive Committee.

San Francisco Electrical League Elects Officers for 1924

The annual election of officers of the San Francisco Electrical Development League was held in the Palace Hotel on Feb. 11. C. T. Hutchinson, vice-president and general manager of the McGraw-Hill Company of California, was elected president and Curtis M. Lindsay, business manager of the Journal of Electricity, was elected secretary.

E. E. Browne, of Browne-Langlais Electrical Construction Company, San Francisco, A. E. Rowe of Garnett Young & Company, and H. W. Crozier of Sanderson & Porter, Inc., were elected directors for 1924.

Books and Bulletins

ELEMENTS OF STORAGE BATTERIES

By C. M. JANSKY and H. P. WOOD. 241 pages. 148 figures and illustrations. Published by McGraw-Hill Book Company, New York, N. Y.

The authors, who are associated with the University of Wisconsin, have prepared this text to be used in the industrial education series of the Extension Division of the University. The treatment throughout is elementary with a view of supplying the needs of the non-technical man who uses or operates storage batteries and who wishes to have an understanding of the maintenance and repair of such batteries. In view of the increasing use of this device and of the radical change in storage battery practice, a book such as this which combines specific discussion of storage batteries with the chemical and electrical principles involved, should prove of considerable value.

The first three chapters give a general description of the lead-acid storage cell, the fundamental electrical quantities involved and an elementary treatment of the chemistry of this device. A detached description of the nickel-iron-alkaline cell follows and a chapter is then devoted to the general characteristics of storage cells, followed by chapters on their charging and care. Equipment for charging is then described after which testing and maintenance is treated and the final chapter is devoted to the diseases of storage cells.

At the end of each chapter a recapitulation is given followed by a group of questions and problems. The text throughout is well illustrated.

E. R. S.

The initial issue of R.P.M., the official organ of the Electric Club of Seattle, Wash., was published on Feb. 1. The booklet, founded and edited by C. A. Osier, is of six pages and is devoted to personal items concerning the men of the electrical industry in Seattle. V. E. McCain, Western Electric Company; R. M. Cole, Economy Fuse Company, and L. R. Grant, Puget Sound Power & Light Company, are assistant editors of the booklet.

Meetings

Denver Electrical Men Hosts to Architects at Banquet

To cement the relationship between the electrical industry and the architectural profession and develop closer cooperation and better understanding between the two groups, the manufacturers' division of the Electrical Cooperative League of Denver, Colo., arranged an unique banquet and entertainment recently for local architects and draftsmen.

Although the affair was more or less of a venture in that section, it being the first time in the history of the electrical industry of the territory that a gathering of electrical men and architects was arranged, it was regarded as a 100 per cent success.

In the words of H. D. Randall, chairman of the manufacturers' division of the League and district manager of the General Electric Company, "the success of this get-together was most gratifying." Members of the division feel that much has been done to establish a greater consciousness on the part of the architectural fraternity of the magnitude and ramifications of the electrical industry and the importance of electricity in industrial and domestic life, due to this gathering.

No attempt whatever was made during the banquet at advertising nor was anything of an electrical nature placed on exhibition. Obviously the affair was designed to promote acquaintance.

Mr. Randall served as toastmaster and introduced the two speakers, one an electrical man and one a prominent architect. The first speaker, F. L. Easton, district representative of the Economy Fuse & Manufacturing Company, reviewed the purposes of the manufacturers in arranging the get-together. The reply was made by Robert K. Fuller, president of the Colorado Chapter of the American Institute of Architects.

Of importance to the electrical industry, locally as well as nationally, was the announcement by Mr. Fuller that "cooperation is the key to success"; that "architects need the cooperation of such groups as yours and others and should accept it," and also that a building congress, comprising representatives of all building industries in Denver, was being formulated.

He stated that the Electrical Cooperative League of Denver should be a component part of this organization, which is designed to serve as a clearing house for the whole building profession. Representatives will be named, it is expected, from the general contracting group, trades group, plumbing group, and so on. Details of this unique organization, which has the solid backing of the Colorado Chapter of the American Institute of Architects, remain yet to be worked out.

Expenses of the party for architects were underwritten entirely by the individual manufacturer members of the league. In addition to the honor guests, members of the advisory board of the league attended. The evening program which followed the banquet included a number of special musical and dancing features.

Electric Club of Los Angeles Host at Banquet

About four hundred representatives of the electrical industry in the principal cities and communities of California attended the banquet given by the Electric Club of Los Angeles, Calif., at the Biltmore Hotel on Feb. 2, for the purpose of featuring the new electrical home in Los Angeles.

Richard E. Smith, president of the club, presented R. E. Fisher of the Pacific Gas and Electric Company of San Francisco, who spoke briefly on the accomplishments of the California Electrical Cooperative Campaign. Some of the points covered by Mr. Fisher were the electric home program, the cooperation in the electrical industry as a result of the campaign's activity, the necessity of adequate wiring, and the need for education of the public and members of the industry.

R. H. Ballard, vice-president and general manager of the Southern California Edison Company of Los Angeles, was presented as toastmaster. Mr. Ballard introduced Wigginton E. Creed, president of the Pacific Gas and Electric Company of San Francisco. Mr. Creed spoke on the subject of taxation, emphasizing the seriousness of the problem of tax-free securities. He explained the necessity for a revision of federal taxes and analyzed the plan of Secretary Mellon to attain this result. Mr. Creed urged all citizens to study and analyze tax problems, federal, state and municipal, and to use the knowledge so acquired to vote intelligently on tax problems.

COMING EVENTS

New Mexico Public Utilities Association—
Annual Convention—Albuquerque, N. M.
Feb. 18-20, 1924

Pacific Coast Division Electrical Supply Jobbers' Association—
Quarterly Meeting—March 6-8, 1924
Del Monte, Calif.

The Electrical Service League of British Columbia is now incorporated under the Benevolent Societies Act of British Columbia, certificate having been issued on Jan. 15. This permits the league to make contracts, hold property and otherwise conduct business without each member of the council or board of officers being personally liable for the whole amount. The financial year has been made to end on Dec. 31 instead of Sept. 30 as heretofore.

The Clavilux, a new device that projects a soundless composition of color, form and motion upon a screen, is to be presented for the first time in San Francisco on March 15. Two performances will be given by the inventor, Thomas Wilfred. The programs will be given under the auspices of the National League for Woman's Service.

San Diego Electric Club Elects Officers for 1924

Officers for the year 1924 were elected at the Feb. 5 meeting of the San Diego (Calif.) Electric Club. The following men were chosen to serve for the coming year: G. H. P. Dellman, president; Hugo Kuehmsted, first vice-president; Herb Rose, second vice-president, and Guy Miller, secretary-treasurer. K. B. Ayres, Fay Smalley, W. H. Talbott, Walter Wurfel and Jess Zweiner were elected to the board of directors.

Charlie Weiss, who represented San Diego at the Los Angeles Electric Club banquet at the Biltmore, gave a report of the meeting and the time he had, and a vote of thanks was given to the Los Angeles organization for the invitation which was declared appreciated even if circumstances prevented many from being able to attend.

At the previous meeting of the club, for which the election was delayed a week, E. W. Weathers provided the program. T. G. Armstrong, formerly of the McGraw-Hill Company, Inc., spoke on "More Power to California." H. R. Jackson, of the local Chamber of Commerce, spoke on "More Power to San Diego." F. B. Mitchell, of a city firm, spoke on "More Power to the Salesman." This meeting also included an entertainment program and was attended by a large crowd.

Idaho Engineers Conduct Annual Meeting at Pocatello

Engineers of wide reputation were numbered among the speakers at the annual convention of the Idaho Chapter of the American Society of Engineers, held at Pocatello, Idaho, Jan. 21 and 22. The convention was opened with the annual address of the president of the chapter, J. H. Wilson of Idaho Falls. J. Robb Brady gave the address of welcome in behalf of the city.

Various technical matters came up for discussion, and also the matter of urging more drastic laws concerning the licensing of engineers and the raising of the standard to exclude incompetent craftsmen. The delegates visited the Pacific Fruit Express Company's ice plant and the timber treating plant of the Oregon Short Line Railroad Company at Pocatello, and also were guests of the Idaho Power Company on a visit to their new hydroelectric development at American Falls.

The Municipal Light Department of Seattle, Wash., has reached an agreement with representatives of the Pacific Nitrogen Company to furnish that firm with electric current for its proposed $250,000 chemical plant to be built in Seattle, and to represent an ultimate development of $2,000,000. The first unit will be completed by September, 1924, and will require 1,000 kw. of current for its operation. The location of the plant has been pending arrangements for satisfactory current rate with the city light department, and a rate of $30 per kilowatt-year has been agreed upon. Robert P. Greer, manager-director of the chemical company, states that ammonia will be the chief output of the first unit, and that construction work will start immediately. During the construction period, 500 kw. will be used.

Manufacturer, Dealer and Jobber Activities

Allis-Chalmers Company, Milwaukee, Wis., has recently issued a new catalog covering water wheel generators. This catalog will be furnished on request to the factory for Bulletin No. 1127.

American Wiremold Company, Hartford, Conn., has just brought out a new device called the Wiremold Bracket Convenience Outlet. This device is furnished with pigtails for connection to fixture joints under canopies and is intended to be fastened to the wall beside the fixture canopy or side wall bracket.

The Denver Radio Service Corporation has opened a new store at 639 Eighteenth Street, Denver, Colo., for the sale of radio equipment and supplies. The company is composed of A. G. Conter, Ralph H. Burr and A. G. Tubbs.

The Roller-Smith Company, New York City, has issued a new catalog on direct current portable instruments. The catalog covers ammeters, milli-ammeters, voltmeters, milli-voltmeters, galvanometers, etc., and will be furnished upon request to the factory.

The British Aluminum Company, Ltd., through its New York City office, is distributing its new catalog No. 171B dealing with aluminum busbars and connections.

The L. J. Wing Manufacturing Company, New York City, has prepared an interesting booklet on hand and stoker-fired turbine blowers. This is a publication of twenty-four pages and will be of interest to all who have use for forced draft equipment. It contains considerable engineering data not only on the application of these blowers to hand-fired boilers, but also goes into detail in discussing the application of these blowers to underfeed and chain grate stokers, showing how they simplify stoker installation. The booklet is well illustrated throughout and is now ready for distribution. Copies can be had by addressing the company.

The Ohio Brass Company, Mansfield, Ohio, recently purchased approximately five acres of land, and buildings, just across the Pennsylvania Railroad tracks from its present plant. The tract is triangular in shape and is bounded by three trunk-line railroads—the Pennsylvania, Erie and Baltimore & Ohio. The purchase was made from the Aultman-Taylor Machinery Company.

The Domestic Electric Company, Cleveland, Ohio, manufacturer of fractional horsepower motors, has recently announced that E. S. Sabin, Jr., has been appointed to the position of sales manager to fill the vacancy left by W. H. Lamar, who recently resigned from the position.

The R. Thomas & Sons Company, East Liverpool, Ohio, has produced an attractive booklet descriptive of the application of porcelain to various lines of industry.

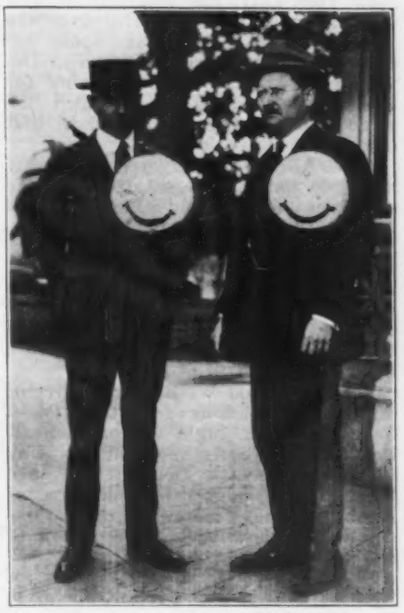
The Marble Card Electric Company, Gladstone, Mich., has brought out a new line of ball-bearing a.c. motors. The line is constructed with particular reference to interchangeability of parts.

The Mutual Electric & Machine Company, of Detroit, Mich., manufacturers of "Bull Dog" safety switches, switchboards and panelboards, has announced the purchase of the plant of the Aluminum Castings Company.

The Mountain Electric Company, Denver, Colo., has moved into new and larger quarters at 1433 Lawrence Street, in that city. The offices and warehouse of the company will in the future be at the new address.

The Western Electric Company has recently placed on the market a new lighting unit known as "99 Safety Unit." The appearance of the new product is similar to the enclosing unit of the same number. The feature claimed for the new unit is the method of holding the bowl. This is done by means of concentric rings which are controlled by one knurled nut.

The Ohio Brass Company has recently published a four-page folder that is devoted to an explanation of a new line of trolley ears manufactured by the company.



Both Roy N. Phelan, secretary of the Electrical Contractors' and Dealers' Association of Sacramento, Calif., and C. V. (Cass) Schneider, of the Electrical Supply Company in that city and president of the association, are members of the Courteous Service Club and spend uuch of their time smiling. The sun seems to have been smiling a little too strong for them when their pictures were taken and that may be the reason that they have not recorded wider grins.

The Esterline-Angus Company, Indianapolis, Ind., has issued its bulletin No. 124 covering the new LR line of graphic meters.

Grant Gear Works, Boston, Mass., has recently issued its 1924 catalog and price list. The booklet can be secured by addressing the manufacturer.

Driver-Harris Company, Harrison, N. J., has recently published Catalog R-24. The booklet contains much valuable information relative to Nichrome and other electrical resistance alloys. Characteristics and properties of various resistance alloys are given in the catalog.

Betts & Betts Corporation of New York, N. Y., has recently announced that it has discontinued its regular sales force and in the place of this organization has established a series of manufacturers' representatives. The Globe Electric Supply Company, of Denver, Colo., will represent the manufacturer in the states of Colorado, Wyoming, New Mexico, Idaho and Utah, and the Panama Lamp & Commercial Company will act as Pacific Coast representative.

The Hurley Machine Company, Chicago, Ill., has announced that it is now ready to deliver, through its jobber, the Pacific States Electric Company, the new Hurley Superior vacuum cup washing machine. The machine has a capacity of eight double or ten single sheets.

Curtis Lighting, Inc., Chicago, Ill., has announced that the company has just completed the Curtis Building in that city. The building is a six-story office and factory structure and will accommodate the central offices and manufacturing plant of the National X-Ray Reflector Company, the X-Ray Reflector Company of New York, Inc., and Luminaire Studios, Inc., of New York and Chicago. The first five floors of the building will be used for manufacturing X-Ray reflectors and other lighting equipment made by the several concerns. The sixth floor will be occupied by the technical departments and executive offices. At the time of moving into the new building the three associated companies have been grouped under the new name Curtis Lighting, Inc. The companies will continue their activities under the new name without altering their policies or organizations.

The General Electric Company has developed a new enclosed automatic starter, the CR-7056-D1, of the primary resistance type, for starting polyphase squirrel-cage induction motors under light load. The resistance of this starter is proportioned to give an inrush current of 3½ times the normal full load motor current, permitting the motors to develop at least 50 per cent, full load torque in starting. These starters are equipped with a single-step resistor, equal parts of which are connected in each phase. The switching elements consist of a starting contactor, a running contactor and a time-limit accelerating relay whose action is retarded by an alternating current magnetic drag. Overload protection is provided by a thermal overload relay. The starter is of the safety type, completely enclosed with a ventilated case. The time interval of the closing of the accelerating relay can be changed from approximately three to eight seconds. To shorten or increase the time interval requires but the turning of an adjusting nut.

Ralph B. Clapp, of Clapp & LaMoree, Los Angeles, Calif., is a recent visitor to San Francisco where the firm has a branch office.

Ray W. Turnbull and **Ralph J. Cordiner** of the Edison Electric Appliance Company, Portland, Ore., are visiting Spokane, Wash., in connection with sales plans for this year.

G. A. Buckley, western sales manager of the Apex Electric Manufacturing Company, with headquarters in Kansas City, Mo., recently spent several days in Los Angeles, Calif., in the interest of representative of the purchasing depart-

Personals

Hugh M. Ferguson, manager of the Salt Lake division of the Utah Power & Light Company, who was recently elected chairman of the advisory committee of the Rocky Mountain Electrical Cooperative League, has a wide experience in the construction, operation and commercial phases of the public utility field. He graduated in mechanical engineering from Cornell University in 1903. Immediately after graduation he became associated with the Westinghouse Electric & Manufacturing Company in the erection of electric stations, a large part of his work being in the West and Northwest. In 1908 Mr. Ferguson became identified with the properties of former Senator W. A. Clark in western Montana, with headquarters at Missoula. Here he was engaged in the construction and operation of water power plants and steam heating systems, and eventually his activities also extended to the commercial department of the electrical business. In October, 1916, he left the Clark properties to become associated with the Utah Power & Light Company, where he was placed in charge of installing and developing that company's steam heating system which serves the commercial section of Salt Lake City. In February, 1919, he was promoted to the position of manager of the Salt Lake division of the Utah Power & Light Company, in which capacity he also retains supervision of that company's steam heating business. Mr. Ferguson is very active in League affairs, and has initiated many valuable ideas which have resulted in considerable benefit to the electrical industry in its local activities.

HUGH M. FERGUSON

E. E. Anderson has been made sales manager for the Middle West territory for the Majestic Electric Appliance Company, San Francisco, Calif.

R. L. Bayne, assistant to the sales manager of the cedar department of the Weyerhauser Sales Company of Spokane, Wash., was recently in Los Angeles on a business trip in the interest of his company.

E. S. Scofield, formerly in the engineering department of the Washington Water Power Company, Spokane, Wash., has been made assistant industrial engineer in the sales department.

Curtis M. Lindsay, business manager of the Journal of Electricity, San Francisco, Calif., has been elected secretary of the San Francisco Electrical Development League.

Edgar Parker, advertising manager for the Ward Motor Vehicle Company, New York City, has been appointed chairman of the publicity committee of the Electric Transportation Bureau of the National Electric Light Association, succeeding Ralph Neumuller, resigned.

Miss Eleanor Hanning, formerly assistant cashier in a Chewelah, Wash., bank, has been appointed an assistant cashier for the Washington Water Power Company.

Theodore Varney, electrical engineer of the Aluminum Company of America, Pittsburgh, Pa., is a recent visitor to the Pacific Coast, having spent some time in San Francisco and Los Angeles.

George B. Thomas, educational director of the Western Electric Company, New York City, has returned to New York after an extended trip over the Pacific Coast. Mr. Thomas spoke before the San Francisco Electrical Development League before leaving for Los Angeles where he attended the national radio exposition held in that city.

C. V. Allen, for many years publicity manager and representative of the securities department, Puget Sound Power & Light Company, Tacoma, Wash., has been promoted to the Seattle office, where he will be associated with Capt. Norwood W. Brockett in the public relations service work of the company. Mr. Allen will be succeeded by **C. S. Reynolds** in the publicity work in Tacoma.

Capt. Norwood W. Brockett, director of public relations for the Puget Sound Power & Light Company, Seattle, Wash., recently spoke at the King County Democratic Club, Seattle, and before the Chamber of Commerce of Puyallup, Wash., discussing the various power bills now before the voters of the State of Washington.

G. M. West, electrical engineer of New York City, was a recent visitor to San Francisco.

J. W. Baker, who has been employed by the Interstate Utilities Company, Spokane, Wash., and its predecessors since 1908, has been made commercial superintendent of the company. Since June, 1921, Mr. Baker has been assistant superintendent in charge of new business and public relations, and prior to that time was district manager at Wallace, Idaho.

James R. Cravath, pioneer illumination engineer, formerly of Chicago, Ill., and now of Richmond, Calif., was recently in receipt of a check from his former colleagues for the purpose of starting a new technical library to replace the books burned in the Berkeley, Calif., fire. The check was accompanied by a letter signed by 47 former business associates.

Martin L. Pierce, manager of the research department of the Hoover Company, Akron, Ohio, was the principal speaker at the weekly membership luncheon of the Salt Lake City Chamber of Commerce on Jan. 30, 1924.

Charles W. Helser, president of the California Development Association and for the past eight years vice-president and manager of agencies for the West Coast Life Insurance Company, San Francisco, Calif., has resigned from that company following his election to the presidency of the Majestic Electric Appliance Company. Mr. Helser will in the future devote all of his time to the developing of this company and its affiliated organizations. Since Mr. Helser's election to the presidency the Majestic Electric Appliance Company has opened executive offices in the Rialto Building, San Francisco, Calif. The factory and sales offices will remain at 590 Folsom Street, San Francisco.

L. M. Nichols has been appointed assistant to the general merchandise manager of the General Electric Company and **J. O. Wetherbie** has been made field supervisor of that department.

E. E. Browne, of Browne-Langlais Electrical Construction Company, San Francisco, Calif., has been elected a director of the San Francisco Electrical Development League for the year 1924-1925.

Grace T. Armstrong, of the Russell Electric Company, Chicago, Ill., manufacturers of electric appliances, was a recent Los Angeles visitor where she was active in demonstrating the appliances made by the company which she represents.

K. E. Van Kuran, district manager of the Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., has just been made general chairman of the Convention Committee of the Pacific Coast Electrical Association. Mr. Van Kuran is one of the conspicuous members of the electrical industry in the West and has long been one of its leaders. In addition to his commercial duties he finds time for constructive plans and cooperative organizations, giving his time freely for the development of the business and the improvement of conditions. He has been president of the Los Angeles Electric Club and has served as vice-chairman of the Advisory Committee of the California Electrical Cooperative Campaign. As general chairman of the Convention Committee Mr. Van Kuran will have charge of all arrangements for the annual meeting of the association which will be held in June.

K. E. VAN KURAN

P. H. Booth, district manager of the Edison Electric Appliance Company, with headquarters in Los Angeles, Calif., recently visited San Francisco on his way to Portland, Seattle and other northern cities.

H. D. Randall, of the General Electric Company, Denver, Colo., and **E. A. West,** ot he Denver Tramway Company, Denver, Colo., have been elected to the board of directors of the Denver Electric Cooperative League.

E. W. Botts has been appointed auditor for the Majestic Electric Appliance Company, San Francisco, Calif.

H. W. Woeber, representative in the Rocky Mountain territory for Landers, Frary & Clark, New Britain, Conn., has been transferred to Salt Lake City, Utah.

Joseph Sweeney, salesman in the St. Maries, Idaho, office of the Washington Water Power Company, has been transferred to the sales department of that company at Spokane, Wash.

V. L. Board, general superintendent of the Public Service Company of Colorado, Denver, Colo., recently spoke before the Denver chapter of the American Institute of Electrical Engineers, taking as his subject the engineering features of his company's business.

R. M. Morris, the recently elected vice-chairman of the Rocky Mountain Public Utility Information Committee, became identified with the telephone industry in Kansas in 1903. He joined the staff of the Mountain States Telephone & Telegraph Company in 1905. In 1911 he became district manager at Durango, Colo., where he remained until 1916, when he became a member of the engineering department in Denver. In 1917 he became division commercial superintendent at Helena, Mont. In February, 1920, he was summoned to Denver to become a special representative of the vice-president and general manager, and was made commercial

R. M. MORRIS

engineer in March of the same year. In January, 1923, Mr. Morris was appointed general commercial manager of the entire Mountain States territory, which covers Colorado, Montana, Idaho, Utah, New Mexico, Texas, Wyoming and Arizona. Mr. Morris has been identified with all of the educational activities of the Rocky Mountain committee, and more especially among the universities and colleges of Colorado, where the committee has inaugurated public utility courses.

W. C. Sterne, of the Public Service Company of Colorado, Denver, Colo., **S. W. Bishop,** executive secretary of the Denver Electric Cooperative League, and **George E. Lewis,** director of Rocky Mountain Committee on Public Information, have been unanimously re-elected to the positions of chairman, vice-chairman and secretary, respectively, of the Electrical Bureau of the Denver Civic and Commercial Association.

K. C. Wright, of Brigham City, Utah, and resident engineer of the Utah state road commission, was chosen as vice-president of the Ogden, Utah, chapter of the American Association of Engineers for the year 1924.

L. A. Francis, of Seattle, Wash., formerly representative on the Pacific Coast for the Gillespie-Eden Corporation, Patterson, N. J., has been appointed representative in northern California for the Automatic Electric Washer Company, Inc., Newton, Iowa. He will make his headquarters at San Francisco.

Theo. Waage, of the Waage Electric Company, Chicago, Ill., left on Feb. 9 for a trip to the Pacific Coast.

Prof. Elihu Thompson, one of the founders of the General Electric Company, Schenectady, N. Y., and among the world's prominent engineers, has been awarded the Lord Kelvin gold medal. The award was made by the American and British Engineering Societies acting jointly. Prof. Thompson will go to Europe during the summer of 1924 to receive the award.

P. B. Miller, of the Simplex Electric Heating Company, Cambridge, Mass., has been transferred from the south Atlantic states to the Pacific Coast to succeed R. C. W. Libbey, resigned. Mr. Miller will make his headquarters in San Francisco, Calif.

Charles Weiss, Phil Mayer, Howard W. Thomas, Boyce C. Jones, L. M. Wall, Wm. A. Cyr, and **Sam Hall** were among the San Diego delegates to the Los Angeles Electric Club banquet and dance at the Biltmore Hotel Feb. 2.

Dr. Elwood Mead, a member of the United States government fact-finding commission which recently held hearings in Salt Lake City, Utah, on reclamation matters, was the principal speaker at the weekly luncheon of the All Engineers' Club in that city on Jan. 21. Dr. Mead told of his work as reclamation engineer in Australia, where for a number of years he served as a member of the state rivers and water supply commission of the Australian government. He told of the practical application there of scientific methods of aided and directed land settlement.

Robert F. Bohn, for several years with the engineering department of the Southern California Edison Company, Los Angeles, Calif., has been made assistant engineer with the Imperial district of the Southern Sierras Power Company, working under F. D. Morgan.

B. A. Wagner, of Electric Agencies, San Francisco, Calif., is on an extended trip to eastern cities visiting factories which his company represents.

John C. Brown, county surveyor of Weber County, **O. C. Lockhart,** and **Joseph M. Tracy,** city engineer of Ogden, Utah, have been elected directors of the Ogden chapter of the American Association of Engineers for 1924.

H. V. Michener, recently appointed manager of the telephone department of the Western Electric Company, Los Angeles, Calif., has been with that company for over seventeen years. He joined the company immediately after coming out of college in 1906 and was attached to the Pittsburgh, Pa., office. After spending several years at the Pittsburgh office he was transferred to the comptroller's office in New York City. Two years later he was again transferred, this time to the staff of the chief stores manager. During his connection with this department he visited over 75 per cent of the branch offices of the company, thus becoming familiar with conditions throughout the

H. V. MICHENER

country. In 1915 Mr. Michener was transferred to the Seattle, Wash., supply department as stores manager for the Northwest, with supervision over the Seattle, Portland, Tacoma and Spokane branches. In August, 1921, he was made Pacific Coast stores manager for the telephone department, with headquarters at San Francisco, Calif.

Harry Sadenwater, radio engineer of the General Electric Company, Oakland, Calif., and the man who was responsible for the installation of the new radio station KGO, spoke before the Oakland, Calif., Electric Club on Feb. 11, on the subject of "Present Radio and Possible Developments."

John L. Scudder, of Ogden, Utah, has been elected secretary; **Ernest Gilgen,** of Ogden, has been elected assistant secretary, and **F. W. Smith,** of Ogden, has been elected treasurer of the Ogden chapter of the American Association of Engineers.

E. J. Crosby, a Spokane, Wash., newspaper man, has been appointed assistant to Gilbert Foster of the publicity department of the Washington Water Power Company, Spokane, Wash.

H. F. Dicke, manager of the Utah Light & Traction Company and member of the board of governors of the Salt Lake, Utah, Chamber of Commerce, represented Salt Lake City at the recent conference of the United States Chamber of Commerce in San Francisco.

E. E. Brazier, sales manager of the Capital Electric Company of Salt Lake City, Utah, presided at a recent luncheon of the Salt Lake City Chamber of Commerce which was attended by about 300 business men of that city.

Trade Outlook

San Francisco

Recent snows in the mountains and rains in the lower altitudes have materially added to the general improvement in business conditions which has been noted. Water reserves for next summer are still far from normal requirements but it is anticipated that climatic conditions will prove favorable.

Real estate movement continues together with industrial and domestic construction work and the demand for materials still holds strong. Jobbers report continued heavy buying, particularly in electrical supplies and merchandise. Labor is well employed and the normal ratio of supply and demand seems well maintained. Several new manufacturing plants are locating in the Bay district and these, with railroad development, are serving to absorb common labor.

Interest rates remain unchanged and money is available for commercial and industrial development. Credits are flexible and are not materially affected by the slight reduction in exports.

Portland

January business figures justify the forecasts made at the end of 1923 for continued good business in 1924.

Taking the activities of the public utilities as an index of what is ahead, we find that they are planning to spend some $10,000,000 or $12,000,000 during the coming year. The total investment in the public utilities of Oregon is now placed at about $150,000,000 and is expected to double in the next six years. The Portland Railway, Light & Power Company will of itself require some $50,000,000 or $60,000,000 in that time. All this is an indication of rapid growth of business generally and of strong confidence in the future. The success of the "customer ownership" method of financing industries seems to be assured in the State of Oregon.

Following the holiday slump, the lumber market is back strong. In January it broke all former records with an export of nearly 54,000,000 ft., a gain of 200 per cent over January, 1923. About 50 per cent of the output of the mills is moving by water.

During January, 1924, building permits were about the same as a year ago. Bank clearings, however, gained 14 per cent and exports, with a total of $5,565,480, were fully 100 per cent over January, 1923.

Los Angeles

Business conditions in Los Angeles are quite satisfactory for this season of the year, though there has been some little reaction since Jan. 1, with retail sales showing a slight decline from the previous month.

In the electrical industry business remains good, though retail sales have fallen off slightly during the past two weeks. However, they show an increase over the corresponding period of a year ago.

In the wholesale business, jobbers and wholesalers report very good business conditions prevailing, which as usual is accounted for by the building program under way, which is somewhat ahead of last year.

Recently several large orders for generating, switching and transformer equipment have been placed in the Los Angeles territory. The sale of industrial apparatus and supplies is particularly gratifying and well up to expectations.

Building permits issued during the last half of January, 1924, numbered 3,140 with a valuation of $7,915,218, as compared with a valuation of $7,018,781 for 2,700 permits issued for the corresponding period in 1923. This is an increase of approximately 13 per cent and does not show the huge increase over the preceding year as was the case of the year just ended.

Bank clearings continue to run well ahead of 1923, with an increase during the past two weeks of 22 per cent over the same period of last year.

Denver

Reports on the business conditions of this territory made in these columns at the beginning of the new year have been substantiated by recent government statistics on certain basic industries of the region.

Bank deposits for 1923 exceeded the previous year by 7.8 per cent while building permits increased 9.1 per cent. Crude oil production gained 13 per cent and grain production of all kinds jumped 31 per cent. Colorado's metal mining industry had an accredited output valued at $21,596,453, an increase of 4.3 per cent.

The Public Service Company of Colorado leads other utilities of the region in new construction work. In Denver alone the company announces a $2,221,447 building and improvement program.

With the exception of the usual midwinter slump in the employment of unskilled labor and clerical workers, every economic factor points to the present year being even a better one for business than 1923. Electrical men, in general, are optimistic over the outlook.

Seattle

Retail and wholesale trade of Seattle and the Puget Sound district is slow following the holiday period, but figures show that it is holding up well as compared with other years. Collections in 1923 showed a higher percentage total, as well as a larger volume, than those in 1922. Jobbing trade is preparing for an exceptionally active spring and summer business.

Construction is holding up in good shape, and the mild weather conditions existing all during the winter have permitted continuous activity in all lines. The month is featured by several large new apartment structures, in each case electrical equipment to be used throughout.

Lumber prices are holding firm, with heavy demand from the Atlantic seaboard and California.

Central stations report a very satisfactory year and splendid prospects for 1924. The improvements and extensions planned by the various power companies throughout the Washington district indicate a big demand for large and small equipment. Practically every power company in the Puget Sound district plans extensive additions. Prices in all lines are holding firm, with deliveries satisfactory.

Spokane

All industrial lines are in good condition, but there has been the usual seasonal slump in retailing during the past month. The local lumber industry, in general, faces a good year.

The development of Spokane into a major market for live stock is indicated by the increase in the number of carloads received at the stock yards.

An outstanding event of the mining industry in the Northwest for the month of January was the finding of an important vein by the Ajax Mining Company. This property, an important silver-lead producer, adjoins the Hercules near Burke, Idaho. Where intersected the vein showed 14 ft. of milling ore with streaks of high grade material. The strike is regarded as one of the most important in recent years and has done a great deal to stimulate renewed interest in metal mining in the Coeur d'Alene district. An event of almost equal interest was a strike made in January at the Old Dominion mine near Chewelah, Wash. Lead was recently quoted at $8.15, with refiners behind in deliveries. One of the best years in mining history for Spokane is expected in 1924.

The sale of electrical appliances for 1923 in this territory is estimated by one of the local papers to amount to approximately $1,250,000.

Salt Lake City

In some sections of the intermountain territory there has been the usual seasonal curtailment of activities in agriculture, highway construction and building, which has caused a temporary surplus of workers of nearly all classes, affecting mostly common labor. However, an indicated strong revival of these industries in the early spring will cause absorption of all workers now affected.

This condition does not prevail, however, in the mining and industrial centers where metal mining, other than silver, and particularly of copper, continues active. Generally speaking, residential, commercial and industrial building continues moderately active despite some curtailment due to winter weather. Industrial concerns, other than those working on a seasonal basis, are operating steadily.

A number of new industries are locating in Salt Lake City and adjacent territory, and many inquiries are being received from prospective sources in regard to conditions affecting their establishment in this locality.

Electrical jobbers, dealers, and merchants in general are anticipating an exceptionally good year.

Collections are reported to be better than for some time.